No. Records Request
1 29713 citrus
2 5350 canker
* 3 300 citrus canker
4 190410 biological
5 528338 control
6 10 #3 and biological control

Record 1 of 298 - AGRICOLA 1998-2000/03

AN: IND 22007639
UD: 199911
AU: Pruvost,-O.; Gottwald,-T.R.; Brocherieux,-C.
TI: The effect of irrigation practices on the spatio-temporal increase of Asiatic citrus canker in simulated nursery plots in Reunion Island.
CN: DNAL SB599.E97
PA: Foreign
PY: 1999
LA: English
CP: Netherlands
CO: EPLPEH
IS: ISSN: 0929-1873
NT: Includes references.
PT: Article
SF: IND
DE: xanthomonas-. overhead-irrigation. trickle-irrigation. mist-irrigation. simulation-. nurseries-. spatial-distribution. epidemiology-. orchards-. disease-transmission. incidence-. virulence-. disease-course. mathematical-models. rain-. plant-diseases. reunion-.
ID: xanthomonas-axonopodis-pv.-citri.
CC: F832
AB: Asiatic citrus canker is a potentially severe disease of several citrus species and cultivars in many tropical and subtropical areas. In such areas, infected nursery plants constitute an important source of primary inoculum for newly established citrus groves. The influence of overhead, drip, and mist irrigation systems on the development of Asiatic citrus canker was studied in simulated. Mexican-lime nurseries in Reunion Island. Overhead irrigation exacerbated the increase of disease incidence and severity caused by a streptomycin-resistant strain of Xanthomonas axonopodis pv. citri. The temporal development of Asiatic citrus canker for overhead irrigated nursery plots was best described by an exponential model, because disease incidence in these plots did not come close to an asymptote during the experimental period. This can be explained by the continuous production of new growth, susceptible to infection by Xanthomonas axonopodis pv. citri, and splash dispersal of Xanthomonas axonopodis pv. citri associated with overhead irrigation. Based on spatial correlation and spatio-temporal analyses, aggregated disease patterns were found irrespective of the irrigation system. In overhead-irrigated plots, the spread of Xanthomonas axonopodis pv. citri lacked directionality. Rainstorms of short duration and high intensity were apparently associated with disease increase in drip-irrigated plots. There is a need to improve cultivation practices in Reunion Island citrus nurseries to minimize Asiatic citrus canker incidence in nurseries and to minimize the introduction of Xanthomonas axonopodis pv. citri to new groves.
XAU: CIRAD, Saint Pierre, Reunion Island, France.

Record 2 of 298 - AGRICOLA 1998-2000/03

AN: CAT 10870469
UD: 199906
AU: Kender,-Walter-J.
TI: Citrus canker : research on the detection, characterization, biology, and control of the disease and its causal agent.
OT: 1988/89 annual report.
Record 6 of 298 - AGRICOLA (1979 - 1984)

AN:    IND 84096774
UD:    8400
AU:    Serizawa,-S.; Inoue,-K.
TI:    Studies on citrus canker disease, caused by Xanthomonas campestris pv. citri (Hasse 1915) Dye 1978. VIII. Examining the percentage of diseased leaves and the severity of lesions as a standard for forecasting its occurrence [in Japan].
CN:    DNAL 93.33-SH62B
PA:    Foreign
PY:    1983
LA:    Japanese; Summary in: English
IS:    ISSN: 0488-6828
NT:    Includes references.
PT:    Article
DE:    Japan-.
CC:    F832

Record 7 of 298 - AGRICOLA (1979 - 1984)

AN:    IND 84091217
UD:    8400
AU:    Takahashi,-T.; Doke,-N.
TI:    Agglutination of Xanthomonas campestris pv. citri, a causal pathogen of citrus canker, by proteinaceous components from citrus leaves [Citrus unshiu, Citrus reticulata, Mandarin oranges, Citrus natsudaidai].
CN:    DNAL 464.9-P562
PA:    Foreign
PY:    1983
LA:    English; Summary in: Japanese
CO:    NSBGA
IS:    ISSN: 0031-9473
NT:    Includes references.
PT:    Article
CC:    F832

Record 8 of 298 - AGRICOLA (1979 - 1984)

AN:    IND 84042811
UD:    8400
AU:    Falico-de-Alcaraz,-G.;
TI:    Control of citrus canker (Xanthomonas citri Hasse Dow) in grapefruit (Citrus paradisi Macfayen). Control de la cancrosis de los citricos (Xanthomonas citri Hasse Dow) en pomelo (Citrus paradisi Macfayen).
OT:    Control de la cancrosis de los citricos (Xanthomonas citri Hasse Dow) en pomelo (Citrus paradisi Macfayen).
CN:    DNAL SB599.F5
PA:    Foreign
Record 9 of 298 - AGRICOLA (1979 - 1984)

AN: IND 84032048
UD: 8400
AU: Ota,-T.
TI: Interactions in vitro and in vivo between Xanthomonas campestris pv. citri and antagonistic Pseudomonas sp. [Citrus canker].
CN: DNAL 464.9-P562
PA: Foreign
PY: 1983
LA: Japanese; Summary in: English
CO: NSBGA
IS: ISSN: 0031-9473
NT: Includes references.
PT: Article
CC: F832

Record 10 of 298 - AGRICOLA (1979 - 1984)

AN: IND 84012712
UD: 8400
AU: Krishna,-A.; Nema,-A.G.
TI: Evaluation of chemicals for the control of citrus canker [caused by Xanthomonas compestris pv. citri].
CN: DNAL 464.8-IN2
PA: Foreign
PY: 1983
LA: English
CO: IPHYA
IS: ISSN: 0367-973X
NT: Includes references.
PT: Article
CC: F832

Record 11 of 298 - AGRICOLA (1979 - 1984)

AN: IND 83128172
UD: 8400
AU: Chand,-J.N.; Pal,-V.
TI: Citrus canker in India and its management [Xanthomonas citri].
CN: DNAL SB608.C5P7
PA: Foreign
PY: 1982
LA: English
Record 12 of 298 - AGRICOLA (1979 - 1984)

AN: IND 84000361
UD: 8400
AU: Kanur,-S.P.; Cheema,-S.S.; Kapur,-S.
TI: Field screening of citrus germplasm against citrus canker caused by Xanthomonas citri (Hasse) Dowson.
CN: DNAL 80-IN2
PA: Foreign
PY: 1981
LA: English
CO: IJHOA
IS: ISSN: 0019-5251
NT: Includes references.
PT: Article
CC: F832

Record 13 of 298 - AGRICOLA (1979 - 1984)

AN: IND 83070375
UD: 8300
AU: Bach,-E.E.; Alba,-A.P.C.; Neto,-J.R.
TI: Detection of strains of Xanthomonas campestris pv. citri (Hasse) dye by enzyme-linked immunosorbent assay (ELISA) Citrus canker, Brazil.
CN: DNAL SB599.F55
PA: Foreign
PY: 1982
LA: English; Summary in: Portuguese
CO: FIBRD
IS: ISSN: 0100-4158
NT: Includes references.
PT: Article
DE: Brazil-.
CC: F832

Record 14 of 298 - AGRICOLA (1979 - 1984)

AN: IND 83037210
UD: 8300
AU: Stall,-R.E.; Miller,-J.W.; Marco,-G.M.; Canteros-de-Echenique,-B.I.
TI: Pathogenicity of three strains of citrus canker organism on grapefruit Xanthomonas campestris pv. citri.
CN: DNAL QR351.I57-1981
PA: Foreign
PY: 1981
LA: English
NT: Includes references.
PT: Article
CC: F832

Record 15 of 298 - AGRICOLA (1979 - 1984)

AN: IND 83037240
UD: 8300
AU: Lopez,-M.M.; Navarro,-L.
CN: DNAL QR351.I57-1981
PA: Foreign
PY: 1981
LA: English
NT: Includes references.
PT: Article
CC: F832

Record 16 of 298 - AGRICOLA (1979 - 1984)

AN: IND 83008511
UD: 8300
AU: Serizawa,-S.; Inoue,-K.
CN: DNAL 93.33-SH62B
PA: Foreign
PY: 1982
LA: Japanese; Summary in: English
IS: ISSN: 0488-6828
NT: 8 ref.
PT: Article
CC: F832

Record 17 of 298 - AGRICOLA (1979 - 1984)

AN: IND 83008512
UD: 8300
AU: Serizawa,-S.; Inoue,-K.
CN: DNAL 93.33-SH62B
PA: Foreign
PY: 1982
LA: Japanese; Summary in: English
IS: ISSN: 0488-6828
NT: 37 ref.
PT: Article
CC: F832

Record 18 of 298 - AGRICOLA (1979 - 1984)
AN: IND 83008513
UD: 8300
AU: Serizawa,-S.; Inoue,-K.
TI: Studies on citrus canker disease (Xanthomonas campestris pv. citri (Hasse 1915) Dye 1978). VII. Control effect and phytotoxicity of combined application and short interval alternative application of Bordeaux mixture and inorganic copper with machine oil emulsifiable concentrate or with mancozeb wettable powder.
CN: DNAL 93.33-SH62B
PA: Foreign
PY: 1982
LA: Japanese; Summary in: English
IS: ISSN: 0488-6828
NT: 6 ref.
PT: Article
CC: F832

Record 19 of 298 - AGRICOLA (1979 - 1984)

AN: IND 82107239
UD: 8200
AU: Lin,-K.S.
TI: A chemotherapeutic study of the citrus canker diseased seedlings Xanthomonas citri.
CN: DNAL SB599.C5
PA: Foreign
PY: 1981
LA: Chinese; Summary in: English
NT: 15 ref.
PT: Article
CC: F832

Record 20 of 298 - AGRICOLA (1979 - 1984)

AN: IND 82069879
UD: 8200
AU: Danos,-E.; Bonazzola,-R.; Berger,-R.D.; Stall,-R.E.; Miller,-J.W.
TI: Progress of citrus canker on some species and combinations in Argentina Xanthomonas compestris.
CN: DNAL 81-F66
PA: Other-US
PY: 1981
LA: English
IS: ISSN: 0097-1219
NT: Includes 16 ref.
PT: Article
DE: Argentina-
CC: F832

Record 21 of 298 - AGRICOLA (1979 - 1984)

AN: IND 82041437
UD: 8200
AU: Purohit,-S.P.
Record 25 of 298 - AGRICOLA (1979 - 1984)

AN: IND 80078864
UD: 8000
AU: Goto,-M.; Yaguchi,-Y.
TI: Relationship between defoliation and disease severity in citrus canker [Xanthomonas citri].
CN: DNAL 464.9-P562
PA: Foreign
PY: 1979
LA: English; Summary in: Japanese
IS: ISSN: 0031-9473
NT: 6 ref.
PT: Article
CC: F832

Record 26 of 298 - AGRICOLA (1979 - 1984)

AN: IND 79062550
UD: 7900
AU: Prasad,-M.V.R.; Moses,-G.J.; Reddy,-G.S.
TI: Variability in Xanthomonas citri, the incitant of citrus canker.
CN: DNAL 464.8-IN2
PY: 1978
LA: English
IS: ISSN: 0367-973X
NT: 5 ref.
PT: Article
CC: 4510

Record 27 of 298 - AGRICOLA (1979 - 1984)

AN: IND 79063814
UD: 7900
AU: Serizawa,-S.; Inoue,-K.
TI: Studies on citrus canker. IV. Influence of rainfall on the residual effectiveness of Bordeaux mixture and inorganic copper Xanthomonas citri.
CN: DNAL 93.33-SH62B
PY: 1978
LA: Japanese; Summary in: English
NT: 20 ref.
PT: Article
CC: 4510
Record 28 of 298 - AGRICOLA (1979 - 1984)

AN: IND 79098421
UD: 7900
AU: Kuhara,-S.
TI: Present epidemic status and control of the citrus canker disease (Xanthomonas citri (Hasse) Dowson) in Japan.
CN: DNAL SB599.R43
PY: 1978
LA: English
IS: ISSN: 0557-7527
NT: 97 ref.
PT: Article
ID: Japan-.
CC: 4510

Record 29 of 298 - AGRICOLA (1979 - 1984)

AN: IND 80004390
UD: 7900
AU: Nicholas,-M.E.
TI: Detecting citrus canker Enzyme-linked immunosorbent assay to detect Xanthomonas citri.
CN: DNAL 1.98-AG84
PA: USDA
PY: 1979
LA: English
IS: ISSN: 0002-161X
PT: Article
CC: 4510

Record 30 of 298 - AGRICOLA (1979 - 1984)

AN: IND 80017828
UD: 7900
AU: Bach,-E.E.; Alba,-A.P.C.; Pereira,-A.L.G.; Zagatto,-A.G.; Rossetti,-V.
TI: Serological studies of Xanthomonas citri (Hasse) Dowson Citrus canker pathogen.
CN: DNAL 442.9-SA6
PY: 1978
LA: English; Summary in: Portuguese
IS: ISSN: 0020-3653
NT: 25 ref.
PT: Article
CC: 4510

Record 31 of 298 - AGRICOLA (1979 - 1984)

AN: IND 80023320
UD: 7900
AU: Pereiva,-A.L.; Watanabe,-K.; Zagatto,-A.G.; Cianciulli,-P.L.
TI: Survival of Xanthomonas citri (Hasse) Dowson, the causal agent of "citrus canker" in the rhizosphere of
guineagrass (Panicum maximum Jacq.) Brazil. A sobrevivencia de Xanthomonas citri (Hasse) Dowson, agente causal do "cancro citrico" na rizosfera de capim coloniao (Panicum maximum Jacq.).

OT: A sobrevivencia de Xanthomonas citri (Hasse) Dowson, agente causal do "cancro citrico" na rizosfera de capim coloniao (Panicum maximum Jacq.).

CN: DNAL 442.8-B529
PY: 1978
LA: Portuguese; Summary in: English
NT: 10 ref.
PT: Article
ID: Brazil-.
CC: 4510

Record 32 of 298 - AGRICOLA 1992-1997

AN: IND 20594035
UD: 9710
AU: Akhtar,-M.A.; Rahber-Bhatti,-M.H.; Aslam,-M.
TI: Antibacterial activity of plant diffusate against Xanthomonas campestris pv. citri.
CN: DNAL SB950.A1P3
PA: Foreign
PY: 1997
LA: English
CP: England; UK
IS: ISSN: 0967-0874
NT: Includes references.
PT: Article
SF: IND
ID: citrus-bacterial-canker-disease.
CC: F832
XAU: National Agricultural Research Centre, Islamabad, Pakistan.

Record 33 of 298 - AGRICOLA 1992-1997

AN: IND 20586846
UD: 9709
AU: Hartung,-J.S.; Pruvost,-O.P.; Villemot,-I.; Alvarez,-A.
TI: Rapid and sensitive colorimetric detection of Xanthomonas axonopodis pv. citri by immunocapture and a nested-polymerase chain reaction assay.
CN: DNAL 464.8-P56
PA: Other-US
PY: 1996
LA: English
CP: Minnesota; USA
CO: PHYTAJ
IS: ISSN: 0031-949X
NT: Includes references.
PT: Article
SF: IND
DE: citrus-. xanthomonas-. plant-pathogenic-bacteria. diagnostic-techniques. rapid-methods. pathogenicity-. colorimetry-. polymerase-chain-reaction.
ID: citrus-bacterial-canker.
We have developed a sensitive and specific assay for Xanthomonas axonopodis pv. citri, the causal agent of citrus bacterial canker. The assay is based on sequential nested amplification by polymerase chain reaction (PCR) of a region of plasmid DNA that is very highly conserved in X. axonopodis pv. citri. Specific amplification products were observed in reactions containing three or fewer target molecules, an improvement of 50- to 100-fold over single-stage PCR, and similar results were observed when beginning with purified DNA or living bacterial cells. Colorimetric detection of amplification products was performed with the DIANA (detection of immobilized amplified nucleic acids) method, which uses labeled primers to allow amplification product capture and detection in a microtiter plate. Predicted amplification products were produced from all strains of X. axonopodis pv. citri and from four of six strains of X. axonopodis pv. aurantifolii but not from other xanthomonads, including citrus epiphytes, except for X. axonopodis pv. vigenicola and one strain isolated from Feronia elephantiascum, consistent with previous hybridization results. No amplification products were observed from strains of X. axonopodis pv. citrumelo that incite citrus bacterial spot disease in Florida citrus nurseries. Amplification was completely inhibited by copper hydroxide when present in the reaction mix at 13.6 micrograms/ml. Concentrated leaf extracts from tangelo and mandarin orange, but not similar extracts from other citrus varieties, also inhibited amplification. Immunomagnetic separation of target bacteria prior to amplification was used to concentrate and recover X. axonopodis pv. citri from samples containing compounds that inhibit amplification (i.e., copper and concentrated citrus extracts). Immunocapture, by concentrating target bacteria from dilute plant extracts, improved the sensitivity of the assay by 100-fold over nested-PCR alone. The combination of sensitivity, specificity, and speed of the assay could make this a widely used assay both in plant quarantine and in areas where X. axonopodis pv. citri is endemic and clean planting stock programs are to be initiated.
AB: The hrp gene cluster of strains of Xanthomonas campestris that cause diseases of citrus was examined by Southern hybridization of genomic DNA and by restriction endonuclease analysis of enzymatically amplified DNA fragments of the hrp gene cluster. The hrp genes were present in all strains of the pathovars of X. campestris tested in this study, including strains of the three aggressiveness groups of the citrus bacterial spot pathogen, X. campestris pv. citrulmeolo. X. campestris pv. citri strains in groups A, B, and C, which cause citrus canker A, B, and C, respectively, each produced characteristic restriction banding patterns of amplified hrp fragments. The restriction banding patterns of all strains within each group were identical. In contrast, restriction fragment length polymorphism was evident among strains of the moderately and weakly aggressive groups of X. campestris pv. citrulmeolo. X. campestris pv. citrulmeolo strains in the highly aggressive group had a homogeneous restriction banding pattern. The characteristic banding patterns obtained for each bacterial group indicate that X. campestris strains causing disease in citrus can be reliably differentiated and identified by restriction analysis of amplified DNA fragments of the hrp gene cluster. In addition, the phylogenetic analysis based on the restriction banding patterns of amplified fragments suggests a polyphyletic relationship of the hrp genes among the strains of X. campestris that cause disease in citrus.

Record 36 of 298 - AGRICOLA 1992-1997

AN: IND 20377889
UD: 9404
AU: Graham,-J.H.; Gottwald,-T.R.
TI: Research perspectives on eradication of citrus bacterial diseases in Florida.
CN: DNAL 1.9-P69P
PA: Other-US
PY: 1991
LA: English
CP: Minnesota; USA
CO: PLDIDE
IS: ISSN: 0191-2917
NT: Includes references.
PT: Article
SF: IND
CC: F832

Record 37 of 298 - AGRICOLA 1992-1997

AN: IND 20377194
UD: 9404
TI: Population dynamics and survival of Xanthomonas campestris in soil in citrus nurseries in Maryland and Argentina.
AN:   IND 20360505
UD:   9401
TI:   Differential host range reaction of citrus and citrus relatives to citrus canker and citrus bacterial spot
determined by leaf mesophyll susceptibility.
CN:   DNAL 1.9-P69P
PA:   Other-US
PY:   1993
LA:   English
CP:   Minnesota; USA
CO:   PLDIDE
IS:   ISSN: 0191-2917
NT:   Includes references.
PT:   Article
SF:   IND
DE:   citrus-. species-. cultivars-. xanthomonas-campestris. xanthomonas-campestris-pv.-citri. bacterial-diseases.
host-range. varietal-resistance. leaves-. mesophyll-. lesions-. epidemiology-. 
ID:   xanthomonas-campestris-pv.-citrumelo.
CC:   F832; F200

Record 39 of 298 - AGRICOLA 1992-1997

AN:   IND 93044908
UD:   9309
AU:   Liu,-T.S.; He,-S.H.; Cheng,-Y.B.
TI:   Screening of new chemicals to control citrus canker.
SO:   Proceedings of the International Citrus Symposium Guangzhou, China, Nov 5-8, 1990 / edited by Huang
CN:   DNAL SB369.I55-1990
PA:   Foreign
PY:   1991
LA:   English
IS:   ISBN: 7800031624
NT:   Includes references.
PT:   Article
DE:   citrus-. xanthomonas-. plant-disease-control.
Metabolic fingerprints of 148 strains of Xanthomonas campestris pv. citri originating from 24 countries and associated with various forms of citrus bacterial canker disease (CBCD) were obtained by using the Biolog substrate utilization system. Metabolic profiles were used to attempt strain identification. Only 6.8% of the studied strains were correctly identified when the commercial Microlog 2N data base was used alone. When the data base was supplemented with data from 54 strains of X. campestris pv. citri (40 CBCD-A strains, 8 CBCD-B strains, and 6 CBCD-C strains) and data from 43 strains of X. campestris associated with citrus bacterial spot disease, the percentage of correct identifications was 70%. Thus, it is recommended that users supplement the commercial data base with additional data prior to using the program for identification purposes. The utilization of Tween 40 in conjunction with other tests can help to differentiate strains associated with CBCD and citrus bacterial spot disease. These results confirmed the separation of X. campestris pv. citri into different subgroups (strains associated with Asiatic citrus canker [CBCD-A], cancrosis B [CBCD-B], and Mexican lime canker [CBCD-C]). The utilization of L-fucose, D-galactose, and alaninamide can be used as markers to differentiate strains associated with these groups. A single strain associated with bacteriosis of Mexican lime in Mexico (CBCD-D) was closely similar to CBCD-B strains.

XAU: CIRAD/IRFA, Saint Pierre, Reunion Island, Beaucouze, France.
Leaf stomata and the pressures required to effect water congestion of tissue and bacterial penetration and growth in leaves were compared for selected cultivars of citrus species and relatives that vary in susceptibility to Asiatic citrus canker and citrus bacterial spot caused by Xanthomonas campesiris pv. citri and X. c. pv. citrumelo, respectively. The differences among cultivars in structure and density of stomata on leaves expanded by two thirds (most susceptible stage to infection) and leaves fully expanded (least susceptible) were not related to previously reported susceptibility to citrus canker. Leaves, two-thirds expanded, of citrus cultivars were inoculated with X. c. citri or X. c. citrumelo after pretreatment at three impact pressures to yield incipient water congestion of tissue, full congestion, and congestion with damage to the epidermis. The number of lesions of citrus canker and citrus bacterial spot increased with degree of water congestion, but there was no interaction among cultivars with impact pressure. The number of bacteria that penetrated and the growth of either X. c. citri or X. c. citrumelo in leaves did not vary significantly among cultivars from 5 to 48 h. Populations continued to increase up to 168 h in citrus cultivars susceptible to citrus canker and in trifoliate orange and its hybrids susceptible to citrus bacterial spot. After 48-72 h, populations of X. c. citri were significantly lower in Cleopatra mandarin and in trifoliate orange, which are moderately resistant to citrus canker, and growth of X. c. citrumelo ceased in citrus species that are highly resistant to citrus bacterial spot. The number of bacteria recovered from within the infiltrated area at 5 h corresponded with the number of lesions of citrus canker and citrus bacterial spot at 168 h, suggesting that individual lesions developed from infections of stomata. In susceptible cultivars, lesion development was often correlated with bacterial populations at 168 h, but these factors were not correlated in cultivars resistant to citrus bacterial spot. Thus, resistance of citrus leaf tissue was expressed not as reduction in the number of bacteria that penetrated through stomata, but as a reduction in bacterial growth after 72 h.
AB: Spatial and spatiotemporal (ST) patterns of citrus canker were examined in three nurseries and two groves in Argentina. The center plant in each plot was inoculated with Xanthomonas campestris pv. citri, and disease was allowed to progress for two growing seasons. Disease assessments were made at about 21-day intervals. Final disease incidence was >90% in all three nurseries and reached 69 and 89% for orange (Citrus sinensis) and grapefruit (C. X paradisi) groves, respectively. For nursery plots, each quadrat was represented by disease counts, i.e., the number of diseased leaves, in a six-plant row segment. For grove plots, each individual tree was considered a quadrat because of the large number of leaves per tree. Data from each assessment date were analyzed by spatial correlation analysis and by ST autocorrelation analysis. Changes in significantly correlated spatial lags closely followed the changes in the disease progress curves for each plot. Proximity patterns in all three nurseries changed little during the first three to four assessments and then became more complex, often with noncontiguous elements that indicated the formation of secondary foci. Noncontiguous elements remained until the last few assessments, when they eroded and the proximity patterns generally became larger and contiguous as the numerous foci coalesced. Disease incidence increased more rapidly in the grove plots than in the nursery plots. Spatial proximity patterns of disease for the grapefruit grove plot, corresponding to assessment dates immediately after a rainstorm with high winds, were elongated in the north-south direction. In contrast, spatial proximity patterns in the orange grove plot were more radially symmetrical until later in the epidemic, when they became more elongate in the north-south orientation and a few noncontiguous elements developed. ST autocorrelations and partial autocorrelations from the ST autocorrelation analysis of nurseries and groves were generally highest with a square proximity pattern. For citrus nurseries, ST autocorrelations and partial autocorrelations were consistent over time. ST autocorrelations decayed rapidly over spatial lags, but remained significant to four temporal lags. Therefore, the ST transfer function for citrus nurseries infected with citrus canker was represented by a ST autoregressive integrated moving-average (STARIMA) model, STARIMA(0,4,1,1). The ST partial autocorrelations were similar for both grove plots, indicating a similarity in the autoregressive components of each grove and, thus, a STARIMA model structure, but the two groves differed in inclusion of moving-average terms. For the orange grove, autocorrelations for the first temporal lag decayed slowly over the first three spatial lags, whereas the autocorrelation
for the first temporal lag in the grapefruit grove decayed rapidly over spatial lags. Also, significant moving-average effects were estimated to extend to two temporal lags in the grapefruit grove data but to only one in the orange grove data. Thus, STARIMA model forms for the orange and grapefruit groves were estimated to be STARIMA(0,1,4,1) and STARIMA(0,2,1,2), respectively.

XAU: USDA, ARS, Horticultural Research Laboratory, Orlando, FL.

Record 45 of 298 - AGRICOLA 1992-1997

AN: IND 92062690
UD: 9211
AU: Gottwald,-T.R.; Graham,-J.H.
TI: A device for precise and nondisruptive stomatal inoculation of leaf tissue with bacterial pathogens.
CN: DNAL 464.8-P56
PA: Other-US
PY: 1992
LA: English
CO: PHYTA
IS: ISSN: 0031-949X
NT: Includes references.
PT: Article
CC: F832
AB: A stomatal inoculation apparatus (SIA) was developed to produce water congestion of leaf tissues and provide a reproducible noninjurious means of introducing two Xanthomonas campestris pathovars of citrus into leaf tissues without wounding. The SIA consisted of a small inoculation chamber attached to an intact leaf. Water and inoculum were metered into an airstream and focused to impact on a 1-mm-diameter area of the leaf surface. Leaf tissues on the abaxial surface of Duncan grapefruit leaves expanded 50-75% were more susceptible to infection than were other growth stages. Inoculum concentrations of 10(6) cfu/ml consistently induced infection and resulted in discrete individual lesions. Airstream impact pressures of 6.28-8.04 kPa against the leaf surface consistently produced tissue congestion and infection without wounding. These same pressures were the minimum threshold for increasing water volume in the leaf. From calculations of volume versus concentration of inoculum that enters a leaf via SIA, it was determined that as few as 2 cfu were required to cause a single lesion.

XAU: ARS, USDA, Orlando, FL.

Record 46 of 298 - AGRICOLA 1992-1997

AN: IND 92043504
UD: 9208
AU: Graham,-J.H.; Gottwald,-T.R.; Riley,-T.D.; Bruce,-M.A.
TI: Susceptibility of citrus fruit to bacterial spot and citrus canker.
CN: DNAL 464.8-P56
PA: Other-US
PY: 1992
LA: English
CO: PHYTA
IS: ISSN: 0031-949X
NT: Includes references.
PT: Article
A pressurized spray (1 g/mm²) that water-soaked the rind of citrus fruit was used to obtain infection by Xanthomonas campestris pv. citri, X. c. citrumelo, and other X. campestris pathovars capable of infecting leaves of the citrus hybrid Swingle citrumelo (Poncirus trifoliata X Citrus paradisi). An aggressive strain of X. c. citrumelo readily infected fruit 20-M mm in diameter, but fruit of smaller and larger diameters were not as susceptible. Marsh White and Marsh Red grapefruit cultivars developed larger lesions over a wider range of fruit sizes compared with Hamlin and Valencia sweet orange and Orlando tangelo. After 28 days, lesions caused by X. c. citrumelo strains did not expand further into rind tissue. Resistance of fruit to several strains of X. c. citrumelo and other pathovars of X. campestris, both of which produced small, discrete lesions, was confirmed by the inability of these strains to multiply in the rind tissue of Marsh White grapefruit. Nearly all strains of X. c. citrumelo were also incapable of sustaining growth and lesion expansion in leaf tissue of Ruby Red grapefruit and Swingle citrumelo; exceptions were aggressive strains, which produced expanding lesions on Swingle citrumelo. The relationship between fruit size and infection of citrus fruit cultivars by an Asiatic strain of X. c. citri was similar to that for X. c. citrumelo. Red Blush grapefruit was more susceptible to Asiatic citrus canker than Hamlin sweet orange, whereas Capurro mandarin was resistant. Unlike lesions produced by X. c. citrumelo, canker lesions continued to expand up to 106 days after inoculation of fruit 20-40 mm in diameter. Lesions did not expand on fruit >60 mm in diameter.
serological-relationships. genetic-analysis. literature-reviews. florida-
ID: bacterial-spot-of-citrus.
CC: F832
XAU: University of Florida, Gainesville, FL.

Record 49 of 298 - AGRICOLA 1992-1997

AN: IND 91051474
UD: 9201
AU: Ferguson,-J.J.
TI: Citrus canker in dooryard plantings.
CN: DNAL SB354.F693
PA: Extension-Service-State-Agriculture
PY: 1984
LA: English
IS: ISSN: 1054-8319
PT: Article
DE: citrus-. cankers-. florida-. 
CC: F832
XAU: University of Florida, Gainesville.

Record 50 of 298 - AGRICOLA 1992-1997

AN: IND 91050893
UD: 9201
AU: Ferguson,-J.
TI: Citrus canker.
CN: DNAL SB354.F693
PA: Extension-Service-State-Agriculture
PY: 1987
LA: English
IS: ISSN: 1054-8319
NT: Includes references.
PT: Article
DE: xanthomonas-campestris-pv.-citri. cankers-. infection-. plant-disease-control. florida-. 
CC: F832
XAU: University of Florida, Gainesville, FL.

Record 51 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 789068234
UD: 7806
AU: Failco-de-Alcaraz,-L-M
TI: Variability of Xanthomonas citri (Hasse) Dow. [pathogen of citrus canker] in strains from different sources
OT: Variabilidad de Xanthomonas citri (Hasse) dow. en aislamientos de distinta procedencia
CN: DNAL SB599.F5
PY: 1977
LA: Spanish
PT: Article
CC: 4510
Record 52 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 789107660
UD: 7808
AU: Koizumi,-M
TI: Behaviour of Xanthomonas citri (Hasse) Dowson and histological changes of diseased tissues in the process of lesion extension [Citrus canker]
CN: DNAL 464.9-P562
PY: 1977
LA: Japanese
PT: Article
CC: 4510

Record 53 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 789165434
UD: 7812
AU: Crandall,-M-A
TI: There's an enemy lurking at the door [Citrus canker, Xanthomonas citri]
CN: DNAL 80-F6622
PA: Other-US
PY: 1978
LA: English
PT: Article
CC: 4510

Record 54 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 779008896
UD: 7702
AU: Moreira,-S
TI: A citrus canker [caused by Xanthomonas citri] is threatening Brazilian citrus growing
OT: Cancro citrico-ameaca a citricultura brasileira
CN: DNAL 9.2-R324
PY: 1975
LA: Portuguese
PT: Article
ID: Brazil-
CC: 4510

Record 55 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 779010552
UD: 7703
AU: Koizumi,-M
TI: Behavior of Xanthomonas citri (Hasse) Dowson [citrus canker] in the infection process. i. multiplication of the bacteria and histological changes following needle-prick inoculation
CN: DNAL 464.9-P562
PY: 1976
LA: Japanese
PT: Article
CC: 4510
Record 56 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 779053396
UD: 7707
AU: Koizumi,-M
TI: Incubation period of citrus canker [Xanthomonas citri] in relation to temperature
CN: DNAL SB354.6.J3K36A
PY: 1976
LA: Japanese
PT: Article
CC: 4510

Record 57 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 779056648
UD: 7707
AU: Pereira,-A-L-G; Watanabe,-K; Zagato,-A-G; Cianciulli,-P-L
TI: Survival of Xanthomonas citri (Hasse) Dowson [the causal agent of citrus canker] on sourgrass (Trichachne insularis (L.) Nees) from eradicated orchards in the State of Sao Paulo, Brazil
OT: Sobrevivencia de Xanthomonas citri (Hasse) Dowson em capim amargoso (Trichacne insularis (L.) Nees) de pomares eradicados, no Estado de Sao Paulo
CN: DNAL 442.8-B529
PY: 1976
LA: Portuguese
PT: Article
ID: Brazil-
CC: 4510

Record 58 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 769079812
UD: 7609
AU: Singh,-K-P; Kaleem,-M; Edward,-J-C
TI: Changes in the free amino acids of citrus leaves in relation to citrus greening [of musambi] and citrus canker [on kinnow]
CN: DNAL 475-SCI23
PY: 1976
LA: English
PT: Article
CC: 4520

Record 59 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 769105021
UD: 7612
AU: Kapur,-S-P; Cheema,-S-S
TI: Citrus canker [Xanthomonas citri] and its control
CN: DNAL S19.P7
PY: 1976
LA: English
PT: Article
Record 60 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 759005329
UD: 7502
AU: Serizawa,-S; Inoue,-K
TI: Studies on citrus canker, Xanthomonas citri. III. The influence of wind on the infection of citrus canker
CN: DNAL 93.33-SH62B
PY: 1974
LA: Japanese
PT: Article
CC: 4510

Record 61 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 75905531
UD: 7507
AU: Nonaka,-F; Yamaguchi,-S; Ota,-T
TI: A phytoalexin-like substance isolated from leaves infected with citrus canker [Xanthomonas citri] and its antifungal action
CN: DNAL SB599.K9
PY: 1974
LA: Japanese
PT: Article
CC: 4510

Record 62 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 759082347
UD: 7510
AU: Serizawa,-S
TI: Control of citrus canker disease caused by Xanthomonas citri
CN: DNAL 421-J27
PY: 1975
LA: Japanese
PT: Article
CC: 4510

Record 63 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 749008328
UD: 7402
AU: Mathar,-A-S; Irulappan,-I; Krishnamurthy,-C-S; Rajappan,-P-V; Gowder,-R-B
TI: Efficacy of different fungicides and antibiotics on the control of citrus canker caused by Xanthomonas citri (Hasse) Dowson
CN: DNAL 22-M262
PY: 1973
LA: English
PT: Article
CC: 4510
Record 64 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 749024483
UD: 7404
AU: Kishore,-V; Chand,-J-N
TI: Citrus canker in Haryana. [Xanthomonas citri, India]
CN: DNAL S19.J68
PY: 1973
LA: English
PT: Article
ID: India-
CC: 4505

Record 65 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 739129945
UD: 7302
AU: Wu,-W-C
TI: Phage-induced alterations of cell disposition, phage adsorption and sensitivity, and virulence in Xanthomonas citri. [Citrus, canker]
CN: DNAL 464.9-P562
PY: 1972
LA: English
PT: Article
CC: 4510

Record 66 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 739189799
UD: 7308
AU: Ram,-G; Nirwan,-R-S; Saxana,-M-L
TI: Citrus canker and its control with fungicides. [Xanthomonas citric]
CN: DNAL SB13.P8
PY: 1972
LA: English
PT: Article
CC: 4510; 4505

Record 67 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 739217970
UD: 7311
AU: Koizumi,-M
TI: Studies on the symptoms of citrus canker formed on Satsuma mandarin fruit and existence of causal bacteria in the affected tissues. [Xanthomonas citri]
CN: DNAL 87-OK323
PY: 1972
LA: Japanese
PT: Article
CC: 4510

Record 68 of 298 - AGRICOLA (1970 - 1978)
AN: CAIN 729081575
UD: 7209
AU: Wu,-W-C
TI: Phage-induced alteration of colony type in Xanthomonas citri. [Citrus, canker]
CN: DNAL 464.9-P562
PY: 1972
LA: English
PT: Article
CC: 4510

AN: CAIN 729114875
UD: 7301
AU: Shahare,-K-C
TI: Streptocycline' against citrus canker disease. [Xanthomonas citri]
CN: DNAL 421-P69
PY: 1972
LA: English
PT: Article
CC: 4510

AN: CAIN 719054339
UD: 7108
AU: Yadav,-R-K-S
TI: You can control citrus canker
CN: DNAL 22-IN8
PY: 1970
LA: English
PT: Article
CC: 7000

AN: CAIN 709008245
UD: 7003
AU: Sakata,-H; Ohta,-T; Nishino,-T; Ohgushi,-R
TI: Studies on the spray program for the control of citrus canker. 2. Effect of spraying time for the control of infestation upon fruit
SO: Kyushu- Assoc-Plant-Protect-Proc, 1968, 14:82-83.
CN: DNAL SB599.K9
PY: 1968
LA: Japanese
NT: English summary.
PT: Article
CC: 7000

AN: CAIN 709008245
UD: 7003
AU: Sakata,-H; Ohta,-T; Nishino,-T; Ohgushi,-R
TI: Studies on the spray program for the control of citrus canker. 2. Effect of spraying time for the control of infestation upon fruit
SO: Kyushu- Assoc-Plant-Protect-Proc, 1968, 14:82-83.
CN: DNAL SB599.K9
PY: 1968
LA: Japanese
NT: English summary.
PT: Article
CC: 7000
AN: CAIN 709078078
UD: 7012
AU: Ohta,-T
TI: Studies on the period of infection with citrus canker of spring leaves and fruits
CN: DNAL SB599.K9
PY: 1969
LA: Japanese
NT: English summary.
PT: Article
CC: 7000

Record 77 of 298 - AGRICOLA (1970 - 1978)

AN: CAIN 709078079
UD: 7012
AU: Iwasa,-T; Ohta,-T; Morita,-A
TI: Studies on the spray program for the control of citrus canker. 3
CN: DNAL SB599.K9
PY: 1969
LA: Japanese
NT: English summary.
PT: Article
CC: 7000

Record 78 of 298 - AGRICOLA (1984 - 12/91)

AN: IND 91045968
UD: 9112
AU: Alvarez,-A.M.; Benedict,-A.A.; Mizumoto,-C.Y.; Pollard,-L.W.; Civerolo,-E.L.
TI: Analysis of Xanthomonas campestris pv. citri and X. c. citrumelo with monoclonal antibodies.
CN: DNAL 464.8-P56
PA: Other-US
PY: 1991
LA: English
CO: PHYTA
IS: ISSN: 0031-949X
NT: Includes references.
PT: Article
CC: F832
AB: A monoclonal antibody (MAb), designated A1, reacted with lipopolysaccharide (LPS) epitopes of all tested strains of Xanthomonas campestris pv. citri isolated from the Asiatic form of citrus bacterial canker (CBC-A), with X. campestris strains pathogenic on ti (Cordyline terminalis), and with some Florida citrus nursery strains associated with citrus bacterial spot (CBS) disease. The A1 MAb did not react with strains associated with other forms of citrus canker (B, C, or D). Except for weak reactions with X. c. manihotis, MAb A1 did not react with 130 other Xanthomonas pathovars and species or with 89 strains of other genera. In contrast, the titers of a rabbit-anti-CBC-A antiserum with several other X. campestris pathovars were as high as titers with some CBC-A strains. A second MAb, A2, reacted only with a flagellar epitope associated with CP1 bacteriophage-sensitive CBC-A strains. The CBC-B strains appeared to be antigenically heterogenous, because no MAb was produced that reacted with all
CBC-B strains; however, the CBC-B strains were grouped by reactions to three MAbs specific for LPS epitopes. One CBC-B MAb, B2, indicated a close antigenic relationship between strains in groups B, C, and D. Another MAb, C1, specific for CBC-C strain XC70 reacted with a heat-sensitive epitope associated with a molecule partially sensitive to proteolytic enzymes. MAbs (T1 and T2) specific for weakly virulent strains isolated in Mexico from Citrus aurantifolia (Mexican lime) did not react with any other strains from citrus. CBS strains from Florida were serologically heterogeneous but distinct from strains associated with CBC. Most of the strongly aggressive CBS strains reacted with a MAb (CBS 1) generated to a strongly aggressive strain, whereas most moderately and weakly aggressive strains reacted with MAb Xct generated to a X. campestris pathogen of ti. Moderately to weakly aggressive CBS strains reacted with MAb A1 but those strains also reacted with MAb Xct, whereas CBC-A strains did not. The LPS banding patterns of CBC-A strains were similar to each other, with major bands at an average Mr of 80,000, and were distinguished from the LPS patterns of A1-positive CBS, ti, and X. c. manihotis strains (major bands at an average Mr of 60,000).

XAU: University of Hawaii, Honolulu, HI.

Record 79 of 298 - AGRICOLA (1984 - 12/91)

AN: IND 91043290
UD: 9112
AU: Egel,-D.S.; Graham,-J.H.; Riley,-T.D.
TI: Population dynamics of strains of Xanthomonas campestris differing in aggressiveness on Swingle citrumelo and grapefruit.
CN: DNAL 464.8-P56
PA: Other-US
PY: 1991
LA: English
CO: PHYTA
IS: ISSN: 0031-949X
NT: Includes references.
PT: Article
DE: citrus-paradisi-x-poncirus-trifoliata. citrus-paradisi. xanthomonas-campestris-pv.-citri. xanthomonas-campestris. strains-. strain-differences. pathogenicity-. population-dynamics. lesions-. host-parasite-relationships. epiphytes-. inoculum-. epidemiology-. ID: xanthomonas-campestris-pv.-citrumelo.
CC: F832
AB: The aggressiveness of strains of Xanthomonas campestris causing citrus canker (X. c. citri) and citrus bacterial spot (X. c. citrumelo) on Swingle citrumelo and Duncan grapefruit was assessed by comparing lesion expansion and population development for these strains in greenhouse, growth chamber, and field experiments, using different inoculation techniques and sampling methods. When leaves were pinprick inoculated and resultant lesions sampled over time, there was a positive relationship between internal populations (detected upon macerating lesions) and external populations (detected by swabbing the surface of moist lesions) and between each population and lesion diameter for the different pathovars and aggressiveness types of X. c. citrumelo. Correlations among internal and external populations and lesion diameter were higher in the field than under dew-forming conditions in the growth chamber. A leaf-infiltration method revealed few differences in internal populations among pathovars and strains. Strain X host interactions based on the populations and expansion of lesions were apparent for the different aggressiveness types of X. c. citrumelo in the field. The highly aggressive strain of X. c. citrumelo on Swingle citrumelo most consistently produced the highest bacterial populations and largest lesions. In the field, internal populations were indicative of external populations and therefore might be predictive of the ability of a strain of X. campestris to spread on a given host.
XAU: University of Florida, Lake Alfred.

Record 80 of 298 - AGRICOLA (1984 - 12/91)

AN: CAT 91258999
UD: 9110
AU: Wolf,-Frederick-A. (Frederick Adolph), 1885-; Massey,-A.-B. (Arthur Ballard), 1889-
Cultivar-specific interactions for strains of Xanthomonas campestris from Florida that cause citrus canker and citrus bacterial spot.


Record 84 of 298 - AGRICOLA (1984 - 12/91)

Bud irradiation to obtain resistance to citrus canker through induction of mutation. Irradiacao de porbulhas [i.e. borbolhas] visando a obtencao de resistencia ao cancro citrico por inducao de mutacao.

Irradiacao de porbulhas [i.e. borbolhas] visando a obtencao de resistencia ao cancro citrico por inducao de mutacao.


Citrus canker [Xanthomonas campestris pv. citri (Hasse) Dye]: disease progress in time in the State of Sao Paulo, Brazil.

seasonal-fluctuations. brazil-
CC: F832
XAU: Instituto Biologico, Sao Paulo, Brazil.

Record 86 of 298 - AGRICOLA (1984 - 12/91)

AN: IND 90027802
UD: 9007
AU: Timmer,-L.W.; Graham,-J.H.
TI: Florida citrus canker five years hence.
CN: DNAL SB379.A9A9
PA: Other-US
PY: 1989
LA: English
IS: ISSN: 0888-1715
NT: Includes references.
PT: Article
DE: citrus-, cankers-, bacterial-diseases. florida-
CC: F832

Record 87 of 298 - AGRICOLA (1984 - 12/91)

AN: IND 90021487
UD: 9005
AU: Gottwald,-T.R.; Timmer,-L.W.; McGuire,-R.G.
TI: Analysis of disease progress of citrus canker in nurseries in Argentina.
CN: DNAL 464.8-P56
PA: Other-US
PY: 1989
LA: English
CO: PHYTA
IS: ISSN: 0031-949X
NT: Includes references.
PT: Article
disease-transmission. disease-resistance. inoculum-. disease-distribution. nurseries-. argentina-.
ID: poncirus-trifoliata-x-citrus-pardisi. spatial-distribution. disease-severity.
CC: F832
AB: Three nursery plots of Duncan grapefruit, Pineapple sweet orange, and Swingle citrumelo rootstock were established in Concordia, Entre Rios, Argentina, to study the temporal increase and spatial spread of citrus bacterial canker from a single focal point. Focal trees of each cultivar were inoculated with Xanthomonas campestris pv. citri, the causal agent of Asiatic citrus bacterial canker, and planted in the center of each plot. Disease increase over time was measured as either disease severity (proportion of leaves infected per plant) or disease incidence (proportion of plants infected). Exponential, monomolecular, logistic, Gompertz, and Weibull models were tested for appropriateness by nonlinear regression analysis. The Gompertz model was superior for describing increase in disease incidence and disease severity in all three citrus nurseries. The rate of disease increase was greater in the most susceptible host, Duncan grapefruit, than in less susceptible hosts, Pineapple orange or Swingle. Disease spread coincided with rain splash dispersal and a rapid increase in the apparent infection rate after windblown rainstorms. Rate of disease spread was independent of wind direction. Aggregation of diseased plants was observed in all three nurseries throughout the duration of the tests. Aggregation of individuals appeared to be equivalent between and across rows, indicating that splash dispersal of inoculum was not impeded by between-row distances. Secondary foci were established early in the epidemics and soon overcame the effect of the original focus of disease. The slope of linearized disease gradients, \(-\ln(-\ln(y)) = a + b \ln(x)\), where \(y = \) disease incidence and \(x = \) distance from the focus of infection in meters, fluctuated over time because of disease-induced defoliation of severely
infected plants. Defoliation of more severely diseased plants near the focus subsequently resulted in positive disease gradient slopes for the susceptible Duncan grapefruit nursery as disease levels near the focus diminished.

XAU: USDA, ARS, Horticultural Laboratory, Orlando, FL.

Record 88 of 298 - AGRICOLA (1984 - 12/91)

AN: IND 90013432
UD: 9005
AU: Graham.-J.H.; Gottwald,-T.R.
TI: Variation in aggressiveness of Xanthomonas campestris pv. citrumelo associated with citrus bacterial spot in Florida citrus nurseries.
CN: DNAL 464.8-P56
PA: Other-US
PY: 1990
LA: English
CO: PHYTA
IS: ISSN: 0031-949X
NT: Includes references.
PT: Article
CC: F832; F200
AB: Reactions on wound-inoculated detached leaves of Swingle citrumelo and Duncan grapefruit were used to characterize strains of Xanthomonas campestris pv. citrumelo associated with citrus bacterial spot (CBS) in Florida citrus nurseries and to distinguish these strains from X. c. citri, the cause of Asiatic citrus canker. Strains of X. c. citrumelo varied in aggressiveness based on the extent and persistence of water-soaking and the development of necrosis. Aggressiveness on detached leaves was correlated with that on wound-inoculated leaves in the greenhouse and field. Reactions on detached leaves developed rapidly and could be evaluated after 7 days, whereas 30 days were required for the development of lesions on attached leaves. In vitro inoculations distinguished the flat-spreading lesions of CBS from the erumpent, calluslike reaction produced by X. c. citri. In four nurseries, the incidence, severity, and spatial distribution of CBS was related to strain aggressiveness. Only the most aggressive strains were associated with natural spread, whereas less aggressive strains were evidently spread mechanically by nursery operations. In one nursery, where strains varied from weakly to moderately aggressive, aggressiveness differed among separate disease foci. Strains from 25 unrelated nursery infestations were evaluated, and the most aggressive strains occurred in only four nurseries. More than 75% of the nursery-outbreaks were associated with Swingle citrumelo. This variety was more susceptible than Duncan grapefruit to the aggressive strain of X. c. citrumelo and less susceptible to X. c. citri in attached leaf tests. There were significant interactions of strains of X. c. citrumelo of different aggressiveness with the two citrus cultivars.
XAU: University of Florida, Lake Alfred.

Record 89 of 298 - AGRICOLA (1984 - 12/91)

AN: CAT 89930487
UD: 9001
OT: Simposio International de Cancro Citrico, Declinio e Doencas Similares das Plantas Citricas.
CN: DNAL SB608.C5158-1987
PA: Foreign
PY: 1988
LA: English
CP: Brazil
NT: Includes bibliographical references.
Isozyme analysis of 14 putative isozymic loci by horizontal starch gel electrophoresis was conducted on 36 strains of Xanthomonas campestris pv. citri representing four pathogenic variants associated with different forms of citrus bacterial canker disease in eight countries. An additional 80 strains of X. campestris associated with citrus bacterial spot disease, primarily in Florida citrus nurseries, also were analyzed. Four enzymes were monomorphic in all 116 strains. The number of isomorphs for the 10 remaining polymorphic loci ranged from two to five. Generally, all strains of X. c. citri were isozymically similar, but not identical in all cases, to the neopathotype strain. No isozymes were found in the citrus canker groups of strains that distinguished any of the forms of citrus canker. As a subgroup, the Asiatic citrus canker strains exhibited relatively little isozymic polymorphism despite their varied origins worldwide. In contrast, several isozymic alleles were present only in the set of citrus bacterial spot strains isolated from Florida citrus nurseries. These strains also exhibited extensive isozymic polymorphism. Isozyme analysis may be a useful technique in epidemiological studies of phytopathogenic bacteria.
Observations of Argentina's citrus industry and citrus canker control program with estimations of additional costs to Florida citrus growers under a Florida citrus canker control program.


Includes statistical data.
Includes 20 references.

USDA regularly implements operational and regulatory changes that affect the status of food and nutrition in the United States. Presented are some of the recent actions.

Citrus canker--It affects more than Florida.

Extract: USDA regularly implements operational and regulatory changes that affect the status of food and nutrition in the United States. Presented are some of the recent actions.
Citrus canker: Hearings produce strong disagreement on APHIS proposals.

Canker control: a proposal to ship to other citrus states.

Citrus canker diseases.
Record 124 of 298 - AGRICOLA (1984 - 12/91)

AN: IND 84099832
UD: 8411
AU: Currier,-W.
TI: Mexican citrus canker: options and implications.
CN: DNAL SB379.A9A9
PA: Other-US
PY: 1983
LA: English
IS: ISSN: 0193-399X
PT: Article
DE: USA-. Mexico-.
CC: D500; F832

Record 125 of 298 - AGRICOLA (1984 - 12/91)

AN: GUA 84127055
UD: 8411
AU: Danos,-E.; Berger,-R.D.; Stall,-R.E.
TI: Temporal and spatial spread of citrus canker within groves [Xanthomonas campestris pv. citri, Argentina].
CN: DNAL 464.8-P56
PA: Other-US
PY: 1984
LA: English
CO: PHYTAJ
IS: ISSN: 0031-949X
NT: Includes 16 references.
PT: Article
DE: Argentina-.
CC: F832

Record 126 of 298 - AGRICOLA (1984 - 12/91)

AN: IND 84096774
UD: 8410
AU: Serizawa,-S.; Inoue,-K.
TI: Studies on citrus canker disease, caused by Xanthomonas campestris pv. citri (Hasse 1915) Dye 1978. VIII. Examining the percentage of diseased leaves and the severity of lesions as a standard for forecasting its occurrence [in Japan].
CN: DNAL 93.33-SH62B
PA: Foreign
PY: 1983
LA: Japanese; Summary in: English
Record 127 of 298 - AGRICOLA (1984 - 12/91)

AN: IND 84091217
UD: 8409
AU: Takahashi,-T.; Doke,-N.
TI: Agglutination of Xanthomonas campestris pv. citri, a causal pathogen of citrus canker, by proteinaceous components from citrus leaves [Citrus unshiu, Citrus reticulata, Mandarin oranges, Citrus natsudaidai].
CN: DNAL 464.9-P562
PA: Foreign
PY: 1983
LA: English; Summary in: Japanese
CO: NSBGA
IS: ISSN: 0031-9473
NT: Includes references.
PT: Article
CC: F832

Record 128 of 298 - AGRICOLA (1984 - 12/91)

AN: IND 84042811
UD: 8405
AU: Falico-de-Alcaraz,-G.;
TI: Control of citrus canker (Xanthomonas citri Hasse Dow) in grapefruit (Citrus paradisi Macfayen). Control de la cancrosis de los citricos (Xanthomonas citri Hasse Dow) en pomelo (Citrus paradisi Macfayen).
OT: Control de la cancrosis de los citricos (Xanthomonas citri Hasse Dow) en pomelo (Citrus paradisi Macfayen).
CN: DNAL SB599.F5
PA: Foreign
PY: 1982
LA: Spanish; Summary in: English
CO: FTPGA
IS: ISSN: 0430-6155
NT: Includes references.
PT: Article
CC: F832

Record 129 of 298 - AGRICOLA (1984 - 12/91)

AN: IND 84032048
UD: 8404
AU: Ota,-T.
TI: Interactions in vitro and in vivo between Xanthomonas campestris pv. citri and antagonistic Pseudomonas sp. [Citrus canker].
CN: DNAL 464.9-P562
PA: Foreign
PY: 1983
Record 130 of 298 - AGRICOLA (1984 - 12/91)

AN: IND 84012712
UD: 8402
AU: Krishna,-A.; Nema,-A.G.
TI: Evaluation of chemicals for the control of citrus canker [caused by Xanthomonas compestris pv. citri].
CN: DNAL 464.8-IN2
PA: Foreign
PY: 1983
LA: English
CO: IPHYA
IS: ISSN: 0367-973X
NT: Includes references.
PT: Article
CC: F832

Record 131 of 298 - AGRICOLA (1984 - 12/91)

AN: IND 84000361
UD: 8401
AU: Kanur,-S.P.; Cheema,-S.S.; Kapur,-S.
TI: Field screening of citrus germplasm against citrus canker caused by Xanthomonas citri (Hasse) Dowson.
CN: DNAL 80-IN2
PA: Foreign
PY: 1981
LA: English
CO: IJHOA
IS: ISSN: 0019-5251
NT: Includes references.
PT: Article
CC: F832

Record 132 of 298 - AGRICOLA (1984 - 12/91)

AN: IND 83128172
UD: 8401
AU: Chand,-J.N.; Pal,-V.
TI: Citrus canker in India and its management [Xanthomonas citri].
CN: DNAL SB608.C5P7
PA: Foreign
PY: 1982
LA: English
NT: Literature review.
Includes references.
PT: Article
Studies on germplasm resistance and chemical control of citrus canker.

Ram-Kishun; Ramesh-Chand


1987

Resistance to Xanthomonas campestris pv. citri in 28 lime (mainly Citrus aurantifolia) clones budded on 16 citrus rootstocks was measured by counting infected leaves in field trials at Bangalore in 1983-85. C. latifolia was free of infection, while rootstock Karna (lime) was resistant (less than 5% infection). Moderate resistance (6-20% infection) was recorded for 9 rootstocks but all other clones and rootstocks were susceptible or highly susceptible. Four sprays of Blitox (50% oxychloride) or Bordeaux mixture along with 2 prunings were found effective in reducing disease and increasing yield. Average disease reduction was 68.3 and 65.2% and the increase in number of fruits was 94.0 and 84.8% and weight of fruits was 86.4 and 78.8%, respectively, for the 2 treatments.

Limes-; rootstocks-; control-; copper-oxychloride; Bordeaux-mixture; rootstock-scion-relationships; diseases-; fruit-crops; subtropical-fruits; citrus-fruits; plant-pathogenic-bacteria; plant-pathology

Xanthomonas-campestris-pv.-citri; Citrus-aurantiifolia; Citrus-latifolia; Citrus-; Xanthomonas-; bacteria-

Oxychloride

1332-40-7; 8011-63-0

copper-fungicides; fungicides; pesticides; bacteria; prokaryotes; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Citrus; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants

FF020; FF600; HH600; HH000


Journal-article

Phytopathology. 1988, 78: 4, 440-443; 28 ref.

1988

A leaf- and twig-spot disease (LSD) known as bacteriosis is a suspected form of citrus canker (Xanthomonas campestris pv. citri) occurring primarily on Mexican lime (ML) trees (Citrus aurantifolia) along the central-Pacific coast of Mexico. Seasonal incidence and severity of presumptive LSD symptoms in 2 groves increased during the dry, cool months (Nov.-May) and decreased during the warm, rainy season (Jun.-Oct.). Presumptive LSD symptoms were observed on all 15 citrus cultivars that were evaluated for natural infection in the field. Observed host susceptibility rankings showed C. limettioides, C. aurantifolia, C. macrophylla and C. latifolia to be most susceptible to LSD, and C. sinensis cv. Valencia, C. tawiana and C. reticulata to be least susceptible. C. sinensis cv. Washington navel, C. grandis, C. aurantium and C. paradisi were intermediate. Presumptive LSD symptoms could not be confirmed on varieties of Poncirus trifoliata. Natural symptom incidence of LSD on non-ML hosts decreased with increasing distance form ML blocks. No definitive X. c. pv. citri isolates were recovered during the course of these experiments and epidemiological and aetiological factors of LSD are unlike those of known forms of citrus canker.

epidemiology-; Limes-; fruit-crops; plant-pathogenic-bacteria; plant-pathology

Citrus-; bacteria-

Mexico-

leaf-spot
Effect of adjuvants on the control of citrus canker. [Xanthomonas campestris pv. citri].
Sadamatsu-N; Mikuriya-H; Tashiro-N
Saga Fruit Tree Exp. Sta., Oki-gun, Saga 845, Japan.
1987

Studies on citrus canker disease. IX. Seasonal changes in disease development and correct timing of bactericidal applications.
Serizawa-S; Inoue-K; Suzuki-M
Bulletin-of-the-Shizuoka-Prefectural-Citrus-Experiment-Station. 1985, No.21, 35-43; 1 pl.; 6 ref.
1985

A study of the development of citrus canker (Xanthomonas campestris pv. citri) on the leaves and fruits of Kawano natsudaidai (Citrus natsudaidai) showed that bactericides were most effective when applied in May as soon as the new leaves appeared and again in the autumn before the typhoon season.

A study of the development of citrus canker (Xanthomonas campestris pv. citri) on the leaves and fruits of Kawano natsudaidai (Citrus natsudaidai) showed that bactericides were most effective when applied in May as soon as the new leaves appeared and again in the autumn before the typhoon season.
Copper based bactericides were effective in reducing the development of canker caused by Xanthomonas campestris pv. citri, while streptomycin sulphate did not show consistent results. On highly susceptible cultivars, bactericides alone did not provide adequate control. Copper based bactericides were most effective on moderately resistant cultivars, incidence being reduced by up to 90% as compared with unsprayed plants. Highly resistant cultivars such as Ponkan tangerine did not require any control measures.
TI: Antagonism between Aspergillus spp. and Xanthomonas campestris pv. citri (Hasse) Dye, incitant of citrus canker.
AU: Masroor-MK; Sudhir-Chandra
PY: 1987
LA: English
AB: Qualitative and quantitative analysis of the mycoflora of soils of citrus orchards was made to identify antagonists effective against this pathogen. Of 27 fungal isolates tested, the highest activity was shown by A. flavus, A. clavatus and A. niger.
DE: antagonists-; antagonism-; hosts-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; Aspergillus-flavus; Aspergillus-niger; Aspergillus-; bacteria-; Aspergillus-Clavatus
GE: India-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Aspergillus; Deuteromycotina; Eumycota; fungi; South-Asia; Asia
CC: FF600; HH100
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Biological-Control
PT: Journal-article
UD: 951216
AN: 881109352

Record 140 of 298 - CABPESTCD 1973-1988

TI: Citrus canker (Xanthomonas campestris pv. citri) and banana leaf rust (Uredo musae) at Christmas Island, Indian Ocean.
AU: Shivas-RG
PY: 1987
LA: English
AB: X. campestris pv. citri was detected on 5 West Indian lime trees but eradication of the disease from the island was not considered feasible. U. musae was widespread on cultivated and wild bananas and is a new record of U. musae on Australian territory.
DE: Limes-; Bananas-; Records-; geography-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Xanthomonas-campestris-pv.-citri; Citrus-; bacteria-; Musa-
GE: Christmas-Island
ID: Uredo-musae
BT: bacteria; prokaryotes; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Musaceae; Zingiberales; monocotyledons; Indian-Ocean-Islands; Australian-Oceania; Oceania
CC: FF600; ZZ800
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Earth-Sciences-General
PT: Journal-article
IS: 0815-3191
UD: 951216
AN: 881343624

Record 141 of 298 - CABPESTCD 1973-1988

TI: New pests recorded.
New insect pests and disease records for various crops are given and include insect pests on Prunus spp., Pinus sp. and Cedrus libani in Lebanon, citrus canker (caused by Xanthomonas [campestris pv.] citri) in Oman and bacterial leaf stripe of wheat and various diseases on pulses in Pakistan.
A field trial was conducted in Sao Paulo to test picloram + triclopyr + 2,4-D for Citrus spp. eradication. Treatments were Togar AEE (90 g picloram amine + 180 g triclopyr ester + 167 g 2,4-D ester) + 30% kerosene + 10% Agral wetter + 64% or 62% water; Togar RTU, formulated as for Togar AE except in 10% kerosene at 193 ml/plant; Togar EEE, formulated as for AEE but herbicides as esters; Togar EEE at 5 and 7% a.i. in diesel oil; picloram + 2,4,5-T in diesel oil; and 2,4-5-T in diesel oil. Togar EEE was superior to Togar AEE and Togar RTU; and diesel oil in the formulation was better than kerosene. Treatments made to injured plants were most effective. It was concluded that Togar EEE at 7% a.i. in diesel oil can be used instead of herbicides containing 2,4,5-T for Citrus spp. eradication for controlling Citrus canker [Xanthomonas campestris citri].

DE: Weeds-; control-; chemical-control; picloram-; triclopyr-; 2,4-D; 2,4,5-T; formulations-; hosts-of-plant-diseases; Woody-weeds; diseases-; tree-fruits; subtropical-fruits; citrus-fruits; fruit-crops

OD: Xanthomonas-campestris-pv.-citri; Citrus-

GE: Brazil-
TI: Pest and disease records. United States of America.
CA: APHIS, USDA.
PY: 1986
LA: English
AB: Details are given of the most recent information on the geographical distribution of citrus canker, Xanthomonas campestris pv. citri, including Florida, where the eradication campaign continues.
DE: geographical-distribution; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: Florida-; USA-
ID: eradication
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; South-Atlantic-States-of-USA; Southern-States-of-USA; USA; North-America; America; Gulf-States-of-USA; Southeastern-States-of-USA
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
UD: 951216
AN: 871338852

Record 146 of 298 - CABPESTCD 1973-1988

TI: Analysis of factors involved in the resistance to citrus canker.
AU: Zubrzycki-HM; Zubrzycki-AD-de
AD: EEA-INTA Bella Vista, CC 5, 3432 Bella Vista, Corrientes, Argentina.
SO: Boletin-Genetico, -Instituto-de-Fitotecnia, -Castelar, -Argentina. 1986, No. 14, 21-33; 27 ref.
PY: 1986
LA: English
LS: Spanish
AB: The topic is reviewed, with sections on conditions predisposing a plant to Xanthomonas campestris pv. citri, methods for field evaluation, the relationship between shoot development and disease response, shoot infection and its relationship with environmental conditions, effects of rootstock and copper application, type of resistance, resistance reactions and selection for resistance. Variability present within collections and commercial populations is illustrated by the example of Valencia Late orange clones, which can be ranked from very resistant to moderately susceptible. Grapefruit varieties showed a range of infection, but values were higher than those for orange and the range was narrower.
DE: reviews-; varietal-reactions; oranges-; grapefruits-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-; Xanthomonas-campestris-pv.-citri; bacteria-; Citrus-paradisi
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Pseudomonadaceae; Gracilicutes; Xanthomonas-campestris; Xanthomonas; Citrus
CC: FF020; FF600; HH600
PT: Journal-article
UD: 951216
AN: 871665708

Record 147 of 298 - CABPESTCD 1973-1988

TI: Citrus canker in Florida.
AU: Schoulties-CL; Civerolo-EL; Miller-JW; Stall-RE; Krass-CJ; Poe-SR; DuCharme-EP
AD: Florida Dep. Agric. Consumer Serv., Gainesville, FL, USA.
PY: 1987
LA: English
AB: Following a brief biological and historical account of this disease, caused by Xanthomonas campestris pv. citri, details are given of the initial detection/diagnosis, symptoms, distribution and citrus hosts of the nursery form of the disease. The eradication programme used in the 2 yr following detection of the disease in Florida in Sep. 1984 is described. The Asiatic form of citrus canker was diagnosed in 1985 and further outbreaks in 1986 led to the application of stringent eradication measures. The perspectives and prospects for the citrus industry are discussed, with costs of the eradication programme and losses due to quarantine regulations prohibiting export to certain areas. It is hoped that support will continue so that once again citrus canker will be eradicated from this State.

DE: reviews-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: Florida-; USA-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; South-Atlantic-States-of-USA; Southern-States-of-USA; USA; North-America; America; Gulf-States-of-USA; Southeastern-States-of-USA
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0191-2917
UD: 951216
AN: 871336109

Record 148 of 298 - CABPESTCD 1973-1988

TI: Use of Xanthomonas campestris pv. vesicatoria to evaluate surface disinfectants for canker quarantine treatment of citrus fruit.
AU: Brown-GE; Schubert-TS
PY: 1987
LA: English
AB: Florida citrus packinghouses are required by quarantine regulations to use chlorine or sodium orthophenylphenate (SOPP) to surface-sanitize asymptomatic fruit to eradicate citrus canker (X. campestris pv. citri). Treatments with chlorine or SOPP in soak or spray applications require exposures for 2 and 1 min, respectively, whereas soap formulations of SOPP applied during washing require 45 s. Applications of chlorine or SOPP during washing for 30 s were as effective as the longer exposures currently required. Wash applications of dual quaternary ammonium compounds, formulations of chlorine dioxide, or peracetic acid for a similar time were equally effective. X. campestris pv. vesicatoria was used in the studies as the assay bacterium because it responded similarly to the canker bacterium in in vitro disinfectant tests and could be used outside of quarantine facilities.

DE: quarantine-; assays-; disinfectants-; Techniques-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; Xanthomonas-campestris-pv.-vesicatoria; bacteria-
ID: eradication
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes
CC: FF600; ZZ900
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Techniques-and-Methodology
PT: Journal-article
IS: 0191-2917
UD: 951216
AN: 871335639

Record 149 of 298 - CABPESTCD 1973-1988

TI: Control of citrus canker (Xanthomonas citri Hasse Dow) on grapefruits (Citrus paradisi Macfayen).
OT: Control de la cancrosis de los citricos (Xanthomonas citri Hasse Dow) en pomelo (Citrus paradisi Macfayen).
AU: Falico-de-Alcaraz-G
AD: Agric. Exp. Sta. INTA, 3432 Bella Vista, Argentina.
In field trials using various fungicides and antibiotics, effectiveness of treatment was evaluated by considering leaf damage caused by X. [campestris pv.] citri and the percentage of diseased fruits. Tribasic copper sulphate (0.5%) gave the best results, control being improved in some tests by the addition of Agrimycin 100 [streptomycin] at 0.12% or Manzate D (maneb + zineb) at 0.2%.

**Declarations:**

- Control:
- Grapefruits:
- Streptomycin:
- Maneb:
- Zineb:
- Diseases:
- Fruit-crops:
- Subtropical-fruits:
- Citrus-fruits:
- Plant-pathogenic-bacteria:
- Plant-pathology

**Organisms:**

- Citrus:
- Xanthomonas-campestris-pv.-citri:
- Bacteria:
- Citrus-paradisi

**Countries:**

- Argentina:

**Chemical Names:**

- Tribasic-copper-sulphate:
- Agrimycin-100:
- Manzate-D

**RN:**

- 57-92-1:
- 12427-38-2:
- 12122-67-7

**BT:**

- Dithiocarbamate-fungicides:
- Carbamate-pesticides:
- Pesticides:
- Fungicides:
- Bacteria:
- Prokaryotes:
- Rutaceae:
- Sapindales:
- Dicotyledons:
- Angiosperms:
- Spermatophyta:
- Plants:
- Xanthomonas-campestris:
- Xanthomonas:
- Pseudomonadaceae:
- Gracilicutes:
- Citrus:
- South-America:
- America

**CC:**

- FF600:
- HH000

**CD:**

- Pests,-Pathogens-and-Biogenic-Diseases-of-Plants:
- Pathogen,-Pest-and-Parasite-Management-General:

**PT:**

- Journal-article

**UD:**

- 951216

**AN:**

- 871333229

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The technique was evaluated for the specific detection and identification of X. campestris pv. citri and diagnosis of citrus canker in the field. Antisera with a titre > 2500 were prepared from heat killed cells of the Uruguayan type A str. Specificity was determined using different isolates of type A from Uruguay, Japan and Brazil and type B from Uruguay and Argentina, and other bacterial strs. Positive reactions occurred with all isolates of type A and a weak reaction with those of type B. The sensitivity was 103 cfu/ml. It is concluded that the A type bacteria are closely related serologically, while the Uruguayan A and B types are weakly related. X. campestris pv. citri was also detected by ELISA in extracts of lesions from inoculated grapefruit leaves.

**DE:**

- Immunodiagnosis:
- Grapefruits:
- Techniques:
- Fruit-crops:
- Plant-pathogenic-bacteria:
- Plant-pathology

**OD:**

- Citrus:
- Xanthomonas-campestris-pv.-citri:
- Bacteria:
- Citrus-paradisi

**GE:**

- Uruguay:

**BT:**

- Bacteria:
- Prokaryotes:
- Rutaceae:
- Sapindales:
- Dicotyledons:
- Angiosperms:
- Spermatophyta:
- Plants:
- Xanthomonas-campestris:
- Xanthomonas:
- Pseudomonadaceae:
- Gracilicutes:
- Citrus:
- South-America:
- America

**CC:**

- FF600:
- ZZ900

**CD:**

- Pests,-Pathogens-and-Biogenic-Diseases-of-Plants:
- Techniques-and-Methodology:

**PT:**

- Journal-article

**UD:**

- 951216

**AN:**

- 871330047

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Preliminary experiments with remote sensing to detect citrus canker.

**AU:**

- Edwards-GJ:
- Balzquez-CH

**AD:**


**SO:**

Aerial and ground remote sensing techniques, using 35 mm natural colour film, colour IR film, and narrowband filtered black and white video were used to examine leaves affected by citrus canker (Xanthomonas campestris pv. citri). Where the leaf spot or spots were <0.5% of the total viewing area, it was necessary that the camera be close enough to examine 3 or 4 leaves. Grapefruit leaves were examined from plants that had been infected for 7-69 d. Natural colour transparencies taken 7 d after inoculation revealed small yellow-green spots against a light green background. Colour IR transparencies showed the same area as yellow-white spots against a magenta background. Photography could be used to detect canker on colour and colour IR film up to 12 ft from the infected plant. Aerial colour and aerial colour IR film could not differentiate infected nursery trees from healthy nursery trees at a scale of 1 to 150. Narrowband filtered video of 7-d infected leaves with the 550 and 700 nm bands yielded the best contrast for image analysis. The image analysis of a canker suspect in the field was compared with the 30-d infected plant in the greenhouse. The digitized image of the canker lesion was the brightest area whereas that of the suspect lesion (negative for canker) was the darkest area in the leaf.

DE: detection-; photography-; Grapefruits-; Techniques-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-; Citrus-paradisi
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants;
Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Citrus
CC: FF600; ZZ900
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Techniques-and-Methodology
PT: Journal-article
IS: 0886-7283
UD: 951216
AN: 871329550

Record 152 of 298 - CABPESTCD 1973-1988

TI: Effects of postharvest chlorine and wax treatments on surface microflora of lime fruit in relation to citrus bacteriosis disease.
AU: Stapleton-JJ
AD: USDA, ARS, Tecoman, Colima, Mexico.
SO: Plant-Disease. 1986, 70: 11, 1046-1048; 11 ref.
PY: 1986
LA: English
AB: Citrus bacteriosis (CB), a suspected form of citrus canker (Xanthomonas campestris pv. citri) is expressed as lesions on leaves and twigs of Mexican lime (Citrus aurantiifolia) as well as on other citrus plants in Colima, Mexico. Immersion of Mexican and Persian lime [C. lotifolia] fruit in 200 p.p.m. Cl, as NaOCl, for 2 min is a prerequisite for movement of fruit out of CB quarantine areas even though no bacteriosis symptoms have been observed on fruit. In addition, most Mexican citrus packers spray fruit with a protective wax coating before shipping. The effects of these treatments on lime surface microflora were evaluated. Total bacteria were reduced by 77-994%, and fungi by 81-100% in assays of fruit washings from limes treated with 50-900 p.p.m. Cl as NaOCl. Nevertheless, total bacterial populations of 2.7 X 102-2.9 X 103 cfu/cm2 of fruit surface survived Cl concn above the mandated 200 p.p.m. level. No naturally occurring Xanthomonas spp. were recovered from fruit washings, although bacteria artificially inoculated in high concn were recovered at least 2 wk later on lime surfaces. Presumptive X. c. pv. citri was not eradicated when intact or wounded fruit were artificially inoculated with high concn of cells, then immersed in 200 p.p.m. Cl for 2 min. The protective wax used in Colima did not increase the efficacy of Cl treatment.

DE: MICROBIAL-FLORA; fruit-; Limes-; Sodium-hypochlorite; activity-; Wax-coatings; control-; quarantine-; Legislation-; diseases-; fruits-; microorganisms-; fruit-crops; subtropical-fruits; citrus-fruits; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; Citrus-latifolia; bacteria-
QE: Mexico-
RN: 7681-52-9
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants;
Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Citrus; North-America; America
CC: FF600; HH000; DD500
Control of Mexican lime bacteriosis with copper-based products.

AD: INIA-CAE Tecoman, Colima, 28100, Mexico.
PY: 1985
LA: English
AB: Mexican lime bacteriosis (MLB), suspected to be a form of citrus canker (Xanthomonas campestris pv. citri), was first detected in leaves of Mexican limes in 1981 and now affects > 20 000 ha in 5 States. Results of 8 experiments conducted between 1983 and 1985 indicated that 2-4 sprays of copper oxychloride (CuOCl) or tribasic-copper sulphate reduced the percentages of leaves infected by 30-80 compared with untreated controls. Similar reductions in the numbers of lesions/total leaves and lesions/infected leaves were found. Better MLB control on young shoots was achieved by spraying with 2.5 g CuOCl/litre 2 or 3 times than by administering the total dosage (5 or 7.5 g/litre, respectively) in a single application. Other experiments showed that Zn/maneb or CuOCl/maneb mixtures gave better control than CuOCl, basic copper sulphate or terramycin-copper sulphate.

Relationship between development of citrus canker and rootstock cultivars for young 'Valencia' orange trees in Misiones, Argentina.

AB: In 1980, symptoms of citrus canker (Xanthomonas campestris pv. citri) appeared in an experimental planting of Valencia orange on 20 different rootstocks established the previous year. The rootstocks were grouped in 3 vigour categories and it was found that the rate of disease spread was higher for trees on vigorous and intermediate rootstocks than on non-vigorous rootstocks. The rate of increase in disease severity was also greater on vigorous and intermediate rootstocks, such as rough lemon and Carrizo citrange, than on non-vigorous trifoliate orange. By 1985, the canker severity was linearly correlated with canopy volume on all rootstocks. There was also a strong linear correlation (r = 0.93) between disease incidence and severity.
A role of extracellular polysaccharides of Xanthomonas campestris pv. citri in bacterial adhesion to citrus leaf tissues in preinfectious stage.

Unwashed bacterial cells of the citrus canker pathogen were found to adhere preferentially to a wounded portion of citrus leaf tissues rather than intact leaf surfaces. Washed bacterial cells of X. campestris pv. citri and unwashed bacterial cells of a colony mutant lacking the ability to produce extracellular polysaccharides (EPS) hardly adhered, even to wounded tissues of citrus leaves. The adhesion of unwashed bacterial cells was inhibited when the wounded leaf tissues were pretreated either with D-glucosamine pronase or low pH citrate buffer. The adhesion of unwashed bacterial cells was also observed to the discs of various nonhost tissues to a certain extent, but it was not influenced by pretreatment with D-glucosamine. These results suggested that X. campestris pv. citri adhered to host tissues through the EPS-agglutinin interaction and that the process might be involved in the initial step for establishing the host-parasite relationship in citrus canker.

The best control of Xanthomonas campestris pv. citri was achieved with streptocycline at 500 p.p.m. with a 4-spray schedule, followed by paushamycin, plantomycin, Bordeaux mixture and agrimycin.
Records of coffee bean weevil, Araecerus fasciculatus DeGeer (Coleoptera: Anthribidae) feeding on citrus fruit in Japan.

AU: Fujii-H; Kashio-T; Ujiye-T
AD: Fruit Tree Res. Sta., Kuchinotsu Branch, Nagasaki 859-25, Japan.
PY: 1985
LA: Japanese
LS: English
AB: Larvae of Araecerus fasciculatus were observed for the first time in October 1984 feeding and developing inside citrus fruit in a grove in Kuchinotsu, Japan. The orange cultivars Trovita, Joppa, Parson Brown, Valencia, Ogasawra, and Fukuhara were infested with the anthribid, and navel oranges were severely affected. All larvae were found under or around lesions of citrus canker in the peel, suggesting that infestation with the anthribid was closely related to the occurrence of the disease. Satsuma-mandarin, Hassaku (Citrus hassaku) and Kawanonatsudaidai (C. natsudaidai) oranges were not infested.
DE: Varietal-susceptibility; Mandarins-; oranges-; fruits-; fruit-crops; entomopathogens-; pathogens-; agricultural-entomology; natsudaidais-
OD: Citrus-hassaku; Citrus-natsudaidai; Araecerus-fasciculatus; Citrus-; arthropods-
GE: Japan-; Kyushu-
ID: Citrus-canker
BT: Citrus; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Araecerus; Anthribidae; Coleoptera; insects; arthropods; invertebrates; animals; East-Asia; Asia; Japan
CC: FF600; HH100
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Biological-Control
PT: Journal-article
IS: 0385-6410
UD: 951216
AN: 860534530

Behaviour of tangerine cultivars to citrus canker caused by Xanthomonas campestris pv. citri.

OT: Comportamento de cultivares de tangerinas ao cancro citrico causado por Xanthomonas campestris pv. citri.
AU: Mohan-SK; Leite-Junior-RP; Pereira-ALG; Campacci-CA
AD: Inst. Agron. Parana, Londrina, PR, Brazil.
SO: Fitopatologia-Brasileira. 1985, 10: 3, 549-558; 1 graph, 5 tab.; 19 ref.
PY: 1985
LA: Portuguese
LS: English
AB: The reaction of mandarin cultivars and hybrids grafted on Rangpur lime and Clementina mandarin rootstocks to citrus canker was evaluated in the field. No consistent differences were found between the rootstocks as to their influence on the reaction of the scion. Seven of the cultivars, including Ponkan, were resistant and 7 moderately so.
DE: varietal-reactions; Mandarins-; diseases-; cultivars-; rootstock-scion-relationships; Clementines-; rootstocks-; Limes-; fruit-crops; subtropical-fruits; citrus-fruits; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; Citrus-reticulata; Xanthomonas-; bacteria-; Citrus-clementina
In the plant pathology section (29-30) it is noted that further attempts to eradicate black sigatoka [Mycosphaerella fijiensis var. difformis] disease of bananas in the Torres Strait region were abandoned; movement of bananas from this region to other parts of Australia is prohibited. Difficulties were encountered in controlling cucurbit powdery mildew [Sphaerotheca fuliginea] owing to the increasing incidence of fungicide-resistant strains. Solarization gave good control of Verticillium wilt of tomato but was ineffective against race 3 of Fusarium [oxysporum f.sp. lycopersici] which threatens tomato crops in the Bowen area. Phytophthora root rot of soyabeans was recorded in the major growing areas of southern Qld.; anthracnose [Glomerella cingulata] was the major problem affecting Stylanthus and zucchini yellow mosaic virus affected a range of cucurbits in SE Qld. Solarization gave good control of Verticillium wilt of tomato but was ineffective against race 3 of Fusarium [oxysporum f.sp. lycopersici] which threatens tomato crops in the Bowen area. Phytophthora root rot of soyabeans was recorded in the major growing areas of southern Qld.; anthracnose [Glomerella cingulata] was the major problem affecting Stylanthus and zucchini yellow mosaic virus affected a range of cucurbits in SE Qld. Cotton bacterial blight [Xanthomonas campestris pv. malvacearum] was widespread in central and southern regions; citrus canker [X. campestris pv. citri] was found on West Indian limes and sweet orange on Thursday Island and infected trees destroyed; and the most serious disease of the expanding mango industry is bacterial black spot [X. campestris pv. mangiferaeindicae].
Record 160 of 298 - CABPESTCD 1973-1988

CA: USDA.
PY: 1985
LA: English
AB: An infestation of Xanthomonas campestris pv. citri is reported from 6 nurseries in Fla. The pathogen is a distinct str., different from any reported elsewhere, including Mexico. Eradication measures are being taken.
DE: strains-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: Florida-; USA-
ID: eradication
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants;
Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; South-Atlantic-States-of-USA;
Southern-States-of-USA; USA; North-America; America; Gulf-States-of-USA; Southeastern-States-of-USA
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0254-9727
UD: 951216
AN: 851309985

Record 161 of 298 - CABPESTCD 1973-1988

TI: A new outbreak of citrus canker in Florida.
AU: Schoutties-CL; Miller-JW
AD: Florida Dep. Agric., Gainesville, FL 32602, USA.
PY: 1985
LA: English
AB: An outbreak of the disease caused by Xanthomonas campestris pv. citri in a citrus nursery is described. An eradication programme is in progress.
DE: fruit-crops; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri
GE: Florida-; USA-
BT: Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris;
Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; South-Atlantic-States-of-USA;
Southern-States-of-USA; USA; North-America; America; Gulf-States-of-USA; Southeastern-States-of-USA
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0191-2917
UD: 951216
AN: 851309458

Record 162 of 298 - CABPESTCD 1973-1988

TI: Role of extracellular polysaccharides of Xanthomonas campestris pv. citri in the early stage of infection.
AU: Goto-M; Hyodo-H
AD: Fac. Agric., Shizuoka Univ., Ohya, Shizuoka 422, Japan.
PY: 1985
LA: English
LS: Japanese
AB: Strs. of the citrus canker pathogen did not produce detectable amounts of ethylene in yeast-extract peptone
broth and a synthetic medium containing methionine. Citrus leaves inoculated with the bacterium, however, produced ethylene at 3 different stages: early (1-6 h after inoculation), intermediate (10-24 h) and late (72-120 h until defoliation). Ethylene biosynthesis in the early stage was also demonstrated by the infiltration of extracellular polysaccharides (EPS) of the bacterium and various polysaccharides such as carboxymethylcellulose, xylan, polyethyleneglycol, starch, inulin, glycogen, pectin and lipopolysaccharides extracted from the bacterium. More ethylene was produced with EPS than with other polysaccharides or living bacterial cells. Citrus leaf tissues infiltrated with EPS showed no significant changes in the electrolyte leakage and amino acid composition. Ethylene production at the early stage of infection was considered to associate with the ‘early selective protection’ of citrus leaf tissue. When the leaf water potential was increased by allowing detached leaves to absorb free water from the cut end of leaf petioles, water congestion was reproduced even after 3 wk on citrus leaves which had previously been injected with polysaccharides. Although the same phenomenon was observed with other polysaccharides, the degree of recovered water-soaking was most conspicuous with EPS. Bacterial cells suspended in water were protected by EPS, resulting in marked increases in their survival rates.

DE: ethylene-; polysaccharides-; water-potential; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: Japan-
RN: 74-85-1
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; East-Asia; Asia
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0031-9473
UD: 951216
AN: 851308969

Record 163 of 298 - CABPESTCD 1973-1988

TI: Citrus canker on Thursday Island.
AU: Jones-DR; Moffett-ML; Navaratnam-SJ
AD: Pl. Path. Branch, Dep. Primary Industries, Meiers Rd., Indoorpilly, Qd. 4066, Australia.
PY: 1984
LA: English
AB: This report of Xanthomonas campestris pv. citri in this Qd. island is only the second notification of the disease since it was eradicated from Australia in 1923. The affected trees and all citrus in the immediate vicinity have been destroyed and movement of citrus plants and fruit to the mainland is prohibited.
DE: control-; legislation-; quarantine-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: Queensland-; Australia-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Australia; Australasia; Oceania
CC: FF600; HH000; DD500
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Pathogen,-Pest-and-Parasite-Management-General; Laws-and-Regulations
PT: Journal-article
IS: 0815-3191
UD: 951216
AN: 851308382

Record 164 of 298 - CABPESTCD 1973-1988

TI: Citrus canker.
AD: Plant Quarantine Branch, Commonw. Dep. Hlth., Canberra, Australia.
Distribution, symptoms, biology, spread and host range of the disease, caused by Xanthomonas campestris pv. citri, are described and recommendations given for its control. Eradication and quarantine measures in force in Australia are described. An outbreak discovered on Thursday Island in the Torres Strait in 1984 was promptly eliminated.

DE: control-; quarantine-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: Australia-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Australasia; Oceania
CC: FF600; HH000
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Pathogen,-Pest-and-Parasite-Management-General
PT: Miscellaneous
UD: 951216
AN: 851306890

Record 165 of 298 - CABPESTCD 1973-1988

TI: Some fruit tree diseases in Japan.
AU: Yamaguchi-A
AD: Fruit Tree Res. Sta., Japan.
SO: Japan-Pesticide-Information. 1984, No.45, 7-12; 3 tab.; 10 ref.
PY: 1984
LA: English
AB: The most important diseases of citrus, apple, Japanese pear, peach, grapevine, Japanese persimmon and chestnuts are listed, together with commonly used control measures. Brief accounts are given of citrus canker (Xanthomonas campestris pv. citri); the spread of citrus mosaic (caused by a virus related to satsuma dwarf virus) and its prevention; invasion of apple scab (Venturia inaequalis) and its spread; grapevine ajinashika virus disease; and development of fungicide resistant fungi.
DE: Fruit-trees; diseases-; grapes-; Chestnuts-; apples-; fruit-crops; plant-pathology
OD: Xanthomonas-campestris-pv.-citri; citrus-; Venturia-inaequalis; Vitis-; Castanea-; Malus-
GE: Japan-
BT: trees; woody-plants; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Venturia-Dothideales; Dothideales; Ascomycotina; Eumycota; fungi; Vitidaeae; Rhamnales; Fagaceae; Fagales; Rosaceae; Rosales; East-Asia; Asia
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0368-265X
UD: 951216
AN: 851306863

Record 166 of 298 - CABPESTCD 1973-1988

TI: A medium for cultivation of the B-strain of Xanthomonas campestris pv. citri, cause of cancrosis B in Argentina and Uruguay.
AU: Canteros-de-Echenique-BI; Zagory-D; Stall-RE
AD: INTA, Bella Vista, Corrientes, Argentina.
SO: Plant-Disease. 1985, 69: 2, 122-123; 1 fig.; 12 ref.
PY: 1985
LA: English
AB: The wild-type B-str. of the citrus canker bacterium grew only on a medium containing sucrose (1%), peptone (0.5%), dipotassium phosphate (0.05%), magnesium sulphate (0.03%) and Difco purified agar (1.5%). Agars other than Difco purified did not support growth.
TI: On occurrence of citrus canker disease in south Sichuan.
OT: [Xanthomonas campestris pv. citri].
AU: Lai-CY; Li-LH; Huang-ZY; Deng-DL; Fan-S
PY: 1984
LA: Chinese
DE: fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: China-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; East-Asia; Asia
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0191-2917
UD: 951216
AN: 851306175

Record 167 of 298 - CABPESTCD 1973-1988

TI: Effects of various machine-copper emulsifiable powders (tentative name) against the citrus red mite [Panonychus citri] and citrus canker [in Japan].
AU: Okamoto-K; Nishizawa-T; Takatsuki-S
AD: Mikasa Chemical Ind. Co., Ltd., Fukuoka 813, Japan.
PY: 1984
LA: Japanese
DE: distribution-; control-; acaricides-; food-plants; pests-; diseases-; fruits-; fruit-crops; subtropical-fruits; citrus-fruits; agricultural-entomology
OD: Panonychus-citri; Citrus-; Xanthomonas-campestris-pv.-citri
GE: Japan-
BT: pesticides; animals; Panonychus; Tetranychidae; Prostigmata; Acari; Arachnida; arthropods; invertebrates; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; East-Asia; Asia
CC: FF600; HH000; HH400
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Pathogen,-Pest-and-Parasite-Management-General; Control-by-Chemicals-and-Drugs
PT: Journal-article
IS: 0385-6410
UD: 951216
AN: 850523600

Record 168 of 298 - CABPESTCD 1973-1988
Effect of some climatic factors on the index of infection of citrus canker caused by Xanthomonas campestris pv. citri on Valencia orange (Citrus sinensis), in Bataguassu, M.S.

Influencia de algunos fatores climaticos sobre o indice de infeccao de cancro citrico, causada por Xanthomonas campestris pv. citri, em laranjeira Valencia (Citrus sinensis), em Bataguassu, M.S.

Oranges-; environmental-factors; wounds-; fruit-crops; plant-pathogenic-bacteria; plant-pathology

Infection was max. in Jan. and Feb. in this area of Brazil and increased at temps. > 20°C and during rainfall. Severe infection occurred on the N. and W. sides of trees, probably because sand carried by locally prevalent winds caused wounds, which favoured penetration of the pathogen.

Cent. Advanced Studies, Bot., Univ. Madras, Madras 600 005, India.

A plant growth-promoting, rhizobacterium-like str. of P. fluorescens which prevented the development of X. campestris pv. citri in vitro was isolated from cankered citrus leaves collected from 3 locations in Madras.

Phytopathology. 1984, 74: 8, 904-908; 3 fig., 2 tab.; 16 ref.

A plant growth-promoting, rhizobacterium-like str. of P. fluorescens which prevented the development of X. campestris pv. citri in vitro was isolated from cankered citrus leaves collected from 3 locations in Madras.

Phytopathology. 1984, 74: 8, 904-908; 3 fig., 2 tab.; 16 ref.

Pseudomonas fluorescens is an antagonist to Xanthomonas citri (Hasse) Dye, the incitant of citrus canker.

Department of Plant Pathology, Univ. of Florida, Gainesville 32611, USA.

Temporal and spatial spread of citrus canker within groves.

Dep. Pl. Path., Univ. Florida, Gainesville 32611, USA.

Phytopathology. 1984, 74: 8, 904-908; 3 fig., 2 tab.; 16 ref.
LA: English
AB: The spread of canker (Xanthomonas campestris pv. citri) was studied in 2 citrus groves in Argentina. Disease gradients were obtained by plotting the proportion of diseased trees in individual rows or subplots of grouped rows versus distances from inoculum sources. The Gompertz transformation was used to linearize the gradients when plotted versus log10 (distance). In the regression equation for the linearized disease gradients, the slope b ranged from -0.2 to -4.13. Disease incidence increased faster near inoculum sources; thus, disease gradients became steeper with time. The increasing steepness of the gradients was evident 40 months after an inoculum source had been eradicated. Slope values were c. the same for 4 scion-rootstock combinations at a given value of the Y-intercept (a). However, a and b increased slower in time on a resistant scion-resistant rootstock combination. Foci were detected by double analysis. Primary spread of canker resulted in a distribution of diseased trees that was sparse, but with a gradient. Diseased trees were not aggregated in the early spread. The later secondary spread was limited, and incidence increased faster near the inoculum source. Aggregation of diseased trees then occurred.

DE: spread-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: Argentina-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; South-America; America
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0031-949X
UD: 951216
AN: 841303053

Record 172 of 298 - CABPESTCD 1973-1988

TI: The mystery of Florida's citrus canker.
AU: Sun-M
PY: 1984
LA: English
AB: The recent outbreak of citrus canker (Xanthomonas campestris pv. citri) in nurseries and its control are reviewed. An apparently new str. of the pathogen is involved and the origin of the outbreak is as yet unknown.

DE: epidemiology-; strains-; diseases-; fruit-crops; subtropical-fruits; citrus-fruits; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri
GE: Florida-; USA-
BT: Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; South-Atlantic-States-of-USA; Southern-States-of-USA; USA; North-America; America; Gulf-States-of-USA; Southeastern-States-of-USA
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
UD: 951216
AN: 841302940

Record 173 of 298 - CABPESTCD 1973-1988

TI: Production of phytoalexin-like substances in the citrus leaves inoculated with a bacterium (Pseudomonas sp.) antagonistic against Xanthomonas campestris pv. citri.
AU: Ota-T
AD: Nagasaki Fruit-Tree Exp. Sta., Omura, Nagasaki 856-01, Japan.
PY: 1983
LA: Japanese
LS: English
AB: Crude extracts from leaves inoculated with a cell suspension of the antagonistic P. sp. (A-ex) or a mixture of
P. sp. + X. campestris pv. citri (AX-ex) strongly inhibited growth of the pathogen, whereas crude extract from leaves inoculated with X. campestris pv. citri alone (X-ex) showed only very slight inhibition. Several fractions of A-ex obtained by TLC on a silica gel plate markedly inhibited the growth of X. campestris pv. citri. Two inhibitory substances were extracted by TLC and were present in high concn in A-ex and AX-ex but only in low concn in X-ex. The substances showed higher antibacterial activity against P. sp. than against X. campestris pv. citri and might be phytoalexins. They are considered to play important roles in the mechanisms of inhibition of citrus canker development.

DE: induced-resistance; phytoalexins-; interactions-; antagonists-; hosts-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; Pseudomonas-; bacteria-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes
CC: FF600; HH100
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Biological-Control
PT: Journal-article
IS: 0031-9473
AN: 841300342

Record 174 of 298 - CABPESTCD 1973-1988

TI: Agglutination of Xanthomonas campestris pv. citri, a causal pathogen of citrus canker, by proteinaceous components from citrus leaves.
AU: Takahashi-T; Doke-N
PY: 1983
LA: English
LS: Japanese
AB: Proteinaceous components which agglutinated unwashed bacterial cells of the pathogen and its extracellular polysaccharides (EPS), but not washed cells and unwashed EPS-nonproducing mutant cells, were isolated from leaves of Citrus unshiu, C. natsudaidai and C. reticulata, forming fibrous material. The agglutinin was prepared by extraction with HCl-acidic water (pH 4) from leaf homogenate followed by precipitation with 50% saturated ammonium sulphate. It was heat and protease labile, insensitive to various salts except at high concn and inhibited at pH more than 6. Similar agglutination of unwashed cells and EPS of other xanthomonads but not those of Pseudomonas and Erwinia was also demonstrated. Of 18 sugars tested, only D-glucosamine showed a potential activity to inhibit the agglutination of X. campestris pv. citri, but not that of other xanthomonads.
DE: agglutination-; Clementines-; fruit-crops; plant-pathogenic-bacteria; plant-pathology; satsumas-; natsudaidais-; citrus-
OD: Citrus-unshiu; Xanthomonas-campestris-pv.-citri; Citrus-natsudaidai; citrus-; bacteria-; Citrus-clementina
BT: bacteria; prokaryotes; Citrus; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0031-9473
AN: 841300332

Record 175 of 298 - CABPESTCD 1973-1988

TI: Problems of citrus diseases in India.
AU: Singh-SP; Reddy-GS; Chand-JN; Pal-V; Ghosh-SK; Mitra-GC; Bhagbati-KN; Mukhopadhyay-S; Trivedi-N; Balaraman-K; Muniyappa-V; Raychaudhuri-SP (ed.); Ahlawat-YS
PB: Surabhi Printers and Publishers; New Delhi; India
PY: 1982

Record 176 of 298 - CABPESTCD 1973-1988

TI: Interactions in vitro and in vivo between Xanthomonas campestris pv. citri and antagonistic Pseudomonas sp.
AU: Ota-T
AD: Nagasaki Fruit Tree Exp. Sta., Omura, Japan.
PY: 1983
LA: Japanese
LS: English
AB: P. sp. isolated from citrus canker lesions inhibited multiplication of the canker pathogen (X. campestris pv. citri) in PS medium and in citrus leaf tissues. In culture, the lower the conc. of the medium the less inhibition occurred, suggesting that suppression by the antagonist was not caused by competition for nutrients. Multiplication of the antagonist was not suppressed by the citrus canker bacterium in PS medium and was even slightly promoted in diluted medium. In citrus leaf tissue inoculated with both bacteria simultaneously by needle prickling the antagonist suppressed growth of X. campestris pv. citri considerably. The suppression was less noticeable when both bacteria were infiltrated into the intercellular spaces. Numbers of the antagonist introduced alone by either method increased for a few days and then gradually decreased. With mixed inoculation, multiplication of the P. sp. was enhanced and its longevity increased as compared with that in single inoculations.
DE: interactions-; antagonists-; antagonism-; hosts-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; Pseudomonas-; bacteria-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants;
Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes
CC: FF600; HH100
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Biological-Control
PT: Journal-article
IS: 0031-9473
UD: 951216
AN: 841398173

Record 177 of 298 - CABPESTCD 1973-1988

TI: Progress of citrus canker on some species and combinations in Argentina.
AU: Danos-E; Bonazzola-R; Berger-RD; Stall-RE; Miller-JW
AD: Junta Provincial de la Citricultura, Concordia, Entre Rios, Argentina.
The spread of Xanthomonas campestris was determined by recording the incidence of disease on trees of several citrus species and varieties in groves in Corrientes and Entre Rios provinces of Argentina. In the Corrientes grove, disease spread (k) was faster on Navel orange (k = 0.18) than on Satsuma mandarin (k = 0.1) or on Comun [Common] mandarin (k = 0.06). In the Entre Rios grove disease spread in Ellendale tangors was slow (k = 0.04) and in four plots of Valencia Late orange k ranged from 0.04 to 0.24.

Despite eradication measures the disease caused by Xanthomonas [campestris pv.] citri has invaded the export fruit zones of Monte Alto and Candido Rodrigues. The various eradication and quarantine methods in the regions are reviewed. Epidemiology of the disease in Brazil is discussed. Chemical control is inefficient and breeding for resistance difficult.

Leaves of susceptible orange seedlings were inoculated with Xanthomonas [campestris pv.] citri and the plants were treated 7 months later at 15-day intervals with various antibiotics and fungicides. The best results were
obtained with streptomycin sulphate + dihydrostreptomycin at 2000 g/ha and Agrimycin 100 + 50% copper oxychloride (1500 + 1500 g/ha), incidence being 12-32%, compared with 90% in the untreated control.

DE: oranges.; control.; dihydrostreptomycin.; copper-oxychloride.; fruit-crops.; plant-pathogenic-bacteria.; plant-pathology
OD: citrus-.; Xanthomonas-campestris-pv.-citri.; bacteria-
GE: Brazil-
ID: streptomycin-sulphate.; agrimycin-100
RN: 128-46-1; 1332-40-7
CC: FF600; HH000
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Pathogen,-Pest-and-Parasite-Management-General
PT: Journal-article
IS: 0366-0567
UD: 951116
AN: 831388182

Record 180 of 298 - CABPESTCD 1973-1988

TI: Identification of citrus canker.
OT: Identificacao do cancro citrico.
AU: Rossetti-V
AD: Inst. Biol., Sao Paulo, Brazil.
PY: 1981
LA: Portuguese
LS: English
AB: Symptoms induced by Xanthomonas [campestris pv.] citri on leaves, fruits and branches are compared with those of other diseases.
DE: symptoms-.; fruit-crops.; plant-pathogenic-bacteria.; plant-pathology
OD: citrus-.; Xanthomonas-campestris-pv.-citri.; bacteria-
GE: Brazil-
BT: bacteria.; prokaryotes.; Rutaceae.; Sapindales.; dicotyledons.; angiosperms.; Spermatophyta.; plants.; Xanthomonas-campestris.; Xanthomonas.; Pseudomonadaceae.; Gracilicutes.; South-America.; America
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0366-0567
UD: 951116
AN: 831388181

Record 181 of 298 - CABPESTCD 1973-1988

TI: Studies on citrus canker disease (Xanthomonas campestris pv. citri). VII. Effectiveness of control and phytotoxicity of combined applications and short-interval alternating applications of Bordeaux mixture and inorganic copper with oil emulsifiable concentrate or with mancozeb wettable powder.
AU: Serizawa-S.; Inoue-K
AD: Shimizu-shi, Shizuoka-ken, Japan.
SO: Bulletin-of-the-Shizuoka-Prefectural-Citrus-Experiment-Station. 1982, No.18, 73-83; 6 ref.
PY: 1982
LA: Japanese
LS: English
AB: Combined applications of an oil emulsifiable concentrate with either Bordeaux mixture as 2:2:1 + 2:6:1 formulations or an inorganic Cu formulation containing Cu(OH)2 + CaCO3 markedly reduced effectiveness of citrus canker control on natsudaidai and satsuma trees, compared with application of either Cu fungicide alone.
Alternating sprays, at 3-day intervals, of oil emulsifiable concentrate and the inorganic Cu formulation were less effective than Bordeaux mixture or inorganic Cu formulation alone, although canker incidence was far lower than on untreated controls. Copper phytotoxicity symptoms were not observed with combined applications or alternating applications. Canker control was effective using the Bordeaux mixture formulations combined with a 1/500 formulation of mancozeb wettable powder, but phytotoxicity symptoms were apparent. When mancozeb was combined with the inorganic Cu formulation, control was less effective but there was no phytotoxicity.

DE: Mancozeb-; Calcium-carbonate; natsudaidais-; satsumas-; diseases-; bactericides-; Bordeaux-mixture; injuries-; subtropical-fruits; citrus-fruits; fruit-crops
OD: Xanthomonas-campestris-pv.-citri; Citrus-; Citrus-natsudaidai; Citrus-unshiu
GE: Japan-
ID: Cupric-hydroxide
RN: 8018-01-7; 471-34-1; 8011-63-0
BT: dithiocarbamate-fungicides; carbamate-pesticides; pesticides; fungicides; copper-fungicides; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Citrus; East-Asia; Asia
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0488-6828
UD: 951116
AN: 830312434

Record 182 of 298 - CABPESTCD 1973-1988

TI: Studies on citrus canker disease (Xanthomonas campestris pv. citri). VI. Phytotoxieties of Bordeaux mixture and inorganic copper.
AU: Serizawa-S; Inoue-K
AD: Shimizu-shi, Shizuoka-ken, Japan.
PY: 1982
LA: Japanese
LS: English
AB: Inorganic Cu formulations [see the preceding abstract] did not prove phytotoxic to young leaves of natsudaidais and satsumas. The incidence of spray damage symptoms (star melanose of fruits and deformation and necrosis of young leaves) is discussed in relation to different formulations of Bordeaux mixture. Leaf Cu contents increased after applications of Bordeaux mixture, rising to a maximum of 52.4 p.p.m.
DE: COPPER-SULFATE; natsudaidais-; satsumas-; diseases-; bactericides-; Bordeaux-mixture; injuries-; subtropical-fruits; citrus-fruits; fruit-crops
OD: Xanthomonas-campestris-pv.-citri; Citrus-; Citrus-natsudaidai; Citrus-unshiu
GE: Japan-
ID: Cupric-hydroxide
RN: 7758-98-7; 8011-63-0
BT: pesticides; copper-fungicides; fungicides; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Citrus; East-Asia; Asia
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0488-6828
UD: 951116
AN: 830312433

Record 183 of 298 - CABPESTCD 1973-1988

TI: Studies on citrus canker disease (Xanthomonas campestris pv. citri). V. The influence of the application interval of Bordeaux mixture and of inorganic copper on control.
In trials with the natsudaidai cv. Kawano and the satsuma cv. Sugiyama, the effects were compared of several bactericides applied 3-5 times either when the accumulated rainfall amounted to 250-300 mm, or at intervals of 30-40 days. Bordeaux mixture 2:2:1 was as effective as a 2:6:1 formulation, and its efficacy was not affected by delaying its application for 2 days after mixing. Several inorganic Cu formulations, comprising 54% Cu (as Cu(OH)2) and 32% Cu (as basic copper sulphate) were also compared with 95% CaCO3, either alone or in various mixtures. The Cu(OH)2 formulation at 1/2000 alone gave the best results. [For part IV see HcA 49, 5331.]

DE: Bordeaux-mixture; COPPER-SULFATE; natsudaidais-; satsumas-; diseases-; subtropical-fruits; citrus-fruits; fruit-crops
OD: Xanthomonas-campestris-pv.-citri; Citrus-natsudaidai; Citrus-unshiu
GE: Japan-
ID: Cupric-hydroxide
RN: 8011-63-0; 7758-98-7
BT: copper-fungicides; fungicides; pesticides; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; Citrus; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; East-Asia; Asia
CC: FF600; ZZ900
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Techniques-and-Methodology
PT: Conference-paper
UD: 951116
AN: 821385915

Record 185 of 298 - CABPESTCD 1973-1988

TI: Pathogenicity of three strains of citrus canker organism on grapefruit.
AU: Stall-RE; Miller-JW; Marco-GM; Canteros-de-Echenique-BI; Lozano-JC
AD: Univ. Florida, Gainesville, USA.
AB: Str. A of Xanthomonas campestris pv. citri was the most aggressive. B was more difficult to isolate. C caused a hypersensitive reaction on the leaves, but no lesions.

DE: grapefruits--; plant-pathogenic-bacteria; fruit-crops; plant-pathology
OD: Xanthomonas-campestris-pv.-citri; citrus-; bacteria-; Citrus-paradisi
ID: pathogenicity-of-strs
BT: bacteria; prokaryotes; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Citrus
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Conference-paper
UD: 951116
AN: 821385886

Record 186 of 298 - CABPESTCD 1973-1988

TI: Growth inhibition of Xanthomonas campestris pv. citri and its reversal by amino acids found in the intercellular fluids of citrus leaves.
AU: Goto-M; Yamanaka-K
AD: Shizuoka Univ., Ohya, Japan.
PY: 1981
LA: English
LS: Japanese
AB: Twenty one amino acids were identified from healthy citrus leaves and quantitative analyses made of the changes in their concs. following inoculation with the citrus canker bacterium. The amino acids present in significant amounts were tested for their role in bacterial growth. Methionine was essential for growth of X. campestris pv. citri and the opt. conc. was 0.05-0.1 mu mol/ml, i.e. the amount detected in leaves. In the presence of methionine, several amino acids such as asparagine, glutamine, leucine and proline were utilized. Proline was the major amino acid found in leaves and its conc. was 10 times that in healthy leaves several days after inoculation. Serine and hydroxylysine were inhibitory to the bacterium but this activity was prevented by the presence of methionine and proline, at concs. equivalent to those in leaves. Sensitivity to serine and hydroxylysine was higher in a virulent isolate than in an avirulent one. The activity of proline was synergistically increased by alanine, although the latter alone did not have such an effect. The conc. of proline in the leaves of the resistant Fortunella japonica (kumquat) was lower than that in susceptible Citrus natsudaidai, but the reverse was observed with serine. The higher ratio of serine: proline may be a factor in the high resistance of F. japonica.
DE: kumquats--; amino-acids; effects--; fruit-crops; plant-pathogenic-bacteria; plant-pathology; natsudaidais-
OD: citrus--; Citrus-natsudaidai; Xanthomonas-campestris-pv.-citri; bacteria--; Fortunella-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Citrus; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0031-9473
UD: 951116
AN: 821384290

Record 187 of 298 - CABPESTCD 1973-1988

TI: Experimental tests with insects involving the dissemination of the bacterium Xanthomonas citri (Hasse) Dowson.
OT: Comprobaciones experimentales con insectos en la diseminacion de la bacteria Xanthomonas citri (Hasse) Dowson.
AU: Rosillo-MA; Rivera-Flores-S; Coll-O-del-R-de; Flores-S-Rivera; De-Coll-O-del-R
Some 56 species of arthropods were tested in the field in Argentina for their ability to act as disseminators of Xanthomonas citri, the causative agent of citrus canker, which occurs in north-eastern Argentina. Details are given of the methods adopted for the tests and of the results obtained; these showed that 25 species belonging to 7 orders (Coleoptera, Hemiptera, Homoptera, Thysanoptera, Hymenoptera, Neuroptera and Diptera) were capable of disseminating the bacterium. The species tested included pests of citrus, predators of those pests, species commonly present in citrus groves and species found on weeds carrying Xanthomonas.

Three-year-old acid lime (Citrus aurantifolia) trees were treated with different chemicals 6 times between mid-February and mid-July. Treatment with streptomycin sulphate or oxytetracycline, each at 1000 p.p.m., gave the best and next best, respectively, control of Xanthomonas [campestris pv.] citri. In tests with streptomycin, Poushamycin (streptomycin + oxytetracycline), oxytetracycline, Bordeaux and copper oxychloride, against Xanthomonas [campestris pv.] citri the streptomycin spray resulted in a 22% yield increase over the control.
AU: Goto-M; Takahashi-T; Messina-MA
AD: Shizuoka Univ., Ohya, Japan.
PY: 1980
LA: English
LS: Japanese
AB: Strs. of the canker B organism were significantly less virulent than those of canker A from Japan when tested on various citrus spp. including Unshu, Natsudaidai, lemon and navel orange. B strs. formed smaller colonies on agar plates, had a delayed lag period in liquid media, did not use lactose and maltose, were susceptible to the new phage Cp3 and lacked an antigenic component of the latter. Ten of 21 B strs. did not use malonate which was consistently used by the A str. All B isolates used mannitol while half the A isolates did not use it. It was concluded that such differences were sufficient to maintain the B organism as a distinct group within X. campestris pv. citri.
DE: fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: Argentina-; Japan-
ID: differentiation-of-strs
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; South-America; America; East-Asia; Asia
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0031-9473
UD: 951216
AN: 811371229

Record 190 of 298 - CABPESTCD 1973-1988

TI: Relationship between defoliation and disease severity in citrus canker.
AU: Goto-M; Yaguchi-Y
AD: Shizuoka Univ., Ohya, Japan.
PY: 1979
LA: English
LS: Japanese
AB: After young shoots of Citrus natsudaidai were spray inoculated with Xanthomonas citri in the field defoliation was >80% when 10% of leaf surface area was covered by lesions and 100% when >20% of the surface was covered. These figures corresponded approx. to 1 large lesion (4.5 mm diam.)/cm2 leaf or 15-20 lesions/mature leaf. Most of the leaves with lesions covering <5% of the surface remained attached throughout the season. When leaves of young seedlings were inoculated in the glasshouse by the leaf infiltration method, abscission was directly related to the surface area with lesions. Most of the fallen leaves had 20% of the area covered, a significantly larger amount than that observed after spray inoculation in the field. The rate of abscission increased when the site of inoculation was in the lower half of the leaf.
DE: fruit-crops; plant-pathogenic-bacteria; plant-pathology; natsudaidais-
OD: Citrus-natsudaidai; bacteria-
ID: Xanthomonas-citri; Japan,-defoliation
BT: bacteria; prokaryotes; Citrus; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas; Pseudomonadaceae; Gracilicutes; Gram-negative-bacteria
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0031-9473
UD: 951216
AN: 801365237

Record 191 of 298 - CABPESTCD 1973-1988
TI: Variability in Xanthomonas citri, the incitant of citrus canker.
AU: Prasad-MVR; Moses-GJ; Reddy-GS
AD: SV Agric. Coll., Tirupati, Andhra Pradesh, India.
SO: Indian-Phytopathology. 1978, publ. 1979, 31: 2, 227-229; 1 tab.; 5 ref.
PY: 1978
LA: English
AB: The reactions of 30 members of the Rutaceae (mainly Citrus spp.) to 19 X. citri isolates are described. Many were not infected and of the others, 9 were selected as differentials.
ADDITIONAL ABSTRACT: The results are presented of inoculation tests with 19 isolates of X. citri on 30 spp. and cvs. in the Rutaceae.
DE: varietal-reactions; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: citrus-; bacteria-
ID: Xanthomonas-citri; variability-of-isolates
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas; Pseudomonadaceae; Gracilicutes; Gram-negative-bacteria
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0367-973X
UD: 951116
AN: 801367352

Record 192 of 298 - CABPESTCD 1973-1988

TI: Relation to temperature to the development of citrus canker lesions in the spring.
AU: Koizumi-M; Grierson-W
AD: Fruit Tree Res. Sta., Kuchinotsu, Nagasaki, Japan.
PY: 1979
LA: English
AB: When X. citri (in Japan) invaded host tissues in autumn and infected them before the av. daily max. temp. for 10 days dropped to 13 deg C or lower, many latent bacteria overwintered, and lesions developed next spring. If infection did not occur within 1 month of invasion, the bacteria died off during the winter. After Feb. or Mar. bacteria easily invaded host tissues through the stomata and through wounds, and abundant lesions appeared in Apr. In early spring bacteria dispersed from diseased trees via rain water. Thus natural infection occurred on overwintered shoots. These lesions provided the most important inoculum source for newly developing shoots, particularly in a warm spring. Bordeaux (applied in mid-Mar.) was effective in controlling the disease during the growing season.
DE: Fungicides-; control-; Bordeaux-mixture; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: citrus-; bacteria-
GE: Japan-
ID: Xanthomonas-citri; Japan,-effect-of-temp
RN: 8011-63-0
BT: pesticides; copper-fungicides; fungicides; bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; East-Asia; Asia; Xanthomonas; Pseudomonadaceae; Gracilicutes; Gram-negative-bacteria
CC: FF600; HH000
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Pathogen,-Pest-and-Parasite-Management-General
PT: Journal-article
UD: 951116
AN: 801362774

Record 193 of 298 - CABPESTCD 1973-1988
The situation of Xanthomonas citri in Argentina, Brazil, Paraguay and Uruguay is briefly reviewed.
unusually clear but tiny plaque was formed on the host within 12 h after inoculation. Infection by Cf neither killed nor drastically prevented host cells from propagation, but the rate of cell division was severely retarded. This phage exhibited an exceedingly narrow host range and was unstable in conventional tris buffer and synthetic medium used for the preparation of other filamentous phages. Based on nucleotide composition analysis (which also revealed that Cf contains an unusual nucleotide), thermal denaturation characteristics and the hydroxyapatite column elution pattern, the genome of Cf was found to be single-stranded DNA. During phage multiplication in host cells single-stranded virus DNA, replicative form I and replicative form II were detected. As shown by acrylamide gel electrophoresis, the size and conformation of the virus, RFI and RFII DNA species, were the same as their counterparts in another filamentous phage Xf.

DE: fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: citrus-; bacteria-
ID: Xanthomonas-citri; filamentous-phage
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas; Pseudomonadaceae; Gracilicutes; Gram-negative-bacteria
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0022-1317
AN: 801361793

Record 196 of 298 - CABPESTCD 1973-1988

TI: Present epidemic status and control of the citrus canker disease (Xanthomonas citri (Hasse) Dowson) in Japan.
AU: Kuhara-S
AD: Fruit Tree Res. Sta., Kuchinotsu, Nagasaki, Japan.
PY: 1978
LA: English
AB: A review of the occurrence, control and related problems of X. citri.
DE: reviews-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: citrus-; bacteria-
GE: Japan-
ID: Xanthomonas-citri; Japan,-review; Xanthomonas-citri-on-citrus-in-Japan
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; East-Asia; Asia; Xanthomonas; Pseudomonadaceae; Gracilicutes; Gram-negative-bacteria
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
UD: 951116
AN: 791354958

Record 197 of 298 - CABPESTCD 1973-1988

TI: Survival of Xanthomonas citri (Hasse) Dowson, causal agent of citrus canker in the rhizosphere of Panicum maximum Jacq.
OT: A sobrevivencia de Xanthomonas citri (Hasse) Dowson, agente causal do "cancro citrico" na rizosfera de capim coloniao (Panicum maximum Jacq.).
AU: Pereira-ALG; Watanabe-K; Zavgatto-AG; Cianciulli-PL
AD: Instituto Biologico, Sao Paulo, Brazil.
SO: Biologico. 1978, 44: 6, 135-138; 1 fig.; 10 ref.
PY: 1978
LA: Portuguese
LS: English
AB: X. citri was isolated from the roots and rhizosphere of P. maximum on sites where infected citrus trees had been destroyed. No symptoms were found on the plants, suggesting that survival of the bacteria may be due to root
Of the antibiotics and fungicides tested against X. citri, thiram was the most effective at checking growth at up to 500 p.p.m. At higher concs. thiram was as effective as streptomycin sulphate, streptocycline and Agrimycin [Streptomycin]. Thiram activity was reduced when tested in combination with any of these antibiotics. Tests showed that thiram persisted on Eureka lemon 15 days after spraying. The results indicate that thiram may be useful in controlling citrus canker.

When Bordeaux mixture was sprayed on Citrus natsudaidai the amount of rainfall and the number of days after application that rain fell influenced the duration of effectiveness. The formation of water-soluble Cu rapidly increased after 30-40 days, so rainfall after this period greatly reduced the effectiveness of the spray. The bactericidal activity against Xanthomonas citri of 2-6-1 Bordeaux mixture was slightly weaker than that of the 2-2-1
mixture but the residual effectiveness was longer. The Cu concentration within the leaves was not correlated with
the control. When calcium carbonate was added to the wettable powder of cupric hydroxide the bactericidal effect
was less than when cupric hydroxide was used alone but the residual effectiveness was longer.
DE: Bordeaux-mixture; natsudaiaidai-; diseases-; fungicides-; persistence-; control-; subtropical-fruits; citrus-fruits;
fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: citrus-; bacteria-; Citrus-natsudaiaidai
GE: Japan-
ID: Xanthomonas-citri; Cupric-hydroxide
RN: 8011-63-0
BT: copper-fungicides; fungicides; pesticides; bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons;
angiosperms; Spermatophyta; plants; Citrus; East-Asia; Asia; Xanthomonas; Pseudomonadaceae; Gracilicutes;
Gram-negative-bacteria
CC: FF600; HH000
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Pathogen,-Pest-and-Parasite-Management-General
PT: Journal-article
IS: 0488-6828
UD: 951116
AN: 790371846

Record 200 of 298 - CABPESTCD 1973-1988

TI: Citrus canker control with fungicides and antibiotics.
AU: Ganesh-Singh; Yadava-HR
AD: U.P. College, Varanasi, India.
PY: 1978
LA: English
AB: In 2-year trials on the control of Xanthomonas citri on citrus trees, several fungicides and antibiotics were
sprayed at 15-day intervals, starting in early July after pruning the old affected leaves and twigs and before the
appearance of the disease. Almost complete control was obtained with copper oxychloride (0.3%), mancozeb (0.2%)
and streptomycin + oxytetracycline (0.005%). Yields were greatly enhanced and fruit drop reduced by the first 2
fungicides. The incidence of fruit cracking was also reduced by captan.
DE: Copper-oxychloride; Mancozeb-; Streptomycin-; Oxytetracycline-; Captan-; diseases-; fruit-; drop-;
fungicides-; subtropical-fruits; citrus-fruits; fruit-crops
OD: citrus-
GE: India-
ID: Xanthomonas-citri; fruit-drop
RN: 1332-40-7; 8018-01-7; 57-92-1; 79-57-2; 133-06-2
BT: copper-fungicides; fungicides; pesticides; dithiocarbamate-fungicides; carbamate-pesticides;
dicarboximide-fungicides; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; South-Asia;
Asia; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; Gram-negative-bacteria
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
UD: 951116
AN: 780368320

Record 201 of 298 - CABPESTCD 1973-1988

TI: Incidence of citrus canker on field grown nucellar and budded citrus plants.
AU: Cheema-SS; Kapur-SP; Dhillon-RS; Anand-S
AD: Punjab Agric. Univ., Ludhiana, India.
SO: Indian Phytopathology. 1975, publ. 1976, 28: 3, 441-442; 1 ref.
PY: 1975
LA: English
AB: The nucellar cvs. were highly susceptible to Xanthomonas citri while old line sweet orange cvs. budded on
rough lemon were free from infection. Marsh Seedless grapefruit showed mild infection. Rootstocks do not appear
to impart scion resistance to X. citri and the vigorous growth of nucellar cvs. may make them more susceptible.

DE: oranges-; grapefruits-; rootstocks-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: citrus-; bacteria-; Citrus-paradisi
GE: India-
ID: Xanthomonas-citri
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Citrus;
South-Asia; Asia; Xanthomonas; Pseudomonadaceae; Gracilicutes; Gram-negative-bacteria
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0367-973X
UD: 951116
AN: 771332847

Record 202 of 298 - CABPESTCD 1973-1988

TI: Changes in the free amino acids of citrus leaves in relation to citrus greening and citrus canker.
AU: Singh-KP; Kaleem-M; Edward-JC
AD: Allahabad Agricultural Institute, Allahabad, India.
PY: 1976
LA: English
AB: Data are presented on the amino acid composition of citrus leaves affected by greening virus disease or by
bacterial canker [Xanthomonas citri], compared with that of healthy leaves. Diseased leaves usually had lower
amino acid contents than healthy leaves.
DE: diseases-; greening-; amino-acids; composition-; leaves-; subtropical-fruits; citrus-fruits; fruit-crops
OD: citrus-
ID: Xanthomonas-citri
BT: Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas; Pseudomonadaceae;
Gracilicutes; bacteria; prokaryotes; Gram-negative-bacteria
CC: FF040
CD: Plant-Composition
PT: Journal-article
IS: 0011-3891
UD: 951116
AN: 770349169

Record 203 of 298 - CABPESTCD 1973-1988

TI: Citrus canker, a threat to Brazilian citrus culture.
OT: Cancro citrico-ameaca a citricultura brasileira.
AU: Moreira-S
PY: 1975
LA: Portuguese
AB: Symptoms of Xanthomonas citri are briefly described, the world distribution of the disease and the present
state of the drive against it in Sao Paulo State are discussed, and legislative and fiscal measures necessary for
eradicating it from Brazil are outlined.
DE: fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: citrus-; bacteria-
GE: Brazil-
ID: Xanthomonas-citri
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants;
South-America; America; Xanthomonas; Pseudomonadaceae; Gracilicutes; Gram-negative-bacteria
CC: FF600
Resistance of citrus to citrus canker caused by Xanthomonas citri - analysis of phenols and sugars.

Kishore-V; Chand-JN


Total phenols were higher in the resistant Citrus reticulata while the highly susceptible C. aurantifolia contained very few phenolics. The only qualitative differences found in sugars in the 4 C. spp. analysed were arabinose and mannose present only in C. aurantifolia.

The incubation period of citrus canker in relation to temperature.

Koizumi-M


The maximum and minimum temperatures for disease development after inoculation were 36-38 deg and 13 deg C, respectively. The incubation period (time from inoculation to the appearance of water-soaked spots) was the same in whole plants as in detached leaves and a mathematical expression was derived for relating this period to the temperature. An index of disease progress was also derived. No relationship between incubation period and disease resistance was observed.

Ultrastructural studies on Taiwan citrus canker disease.

Hsieh-SI; Fong-JC; Lin-LP; Liu-HY
Xanthomonas citri invaded the host cells through the intercellular spaces. In the epidermal cells plasmolysis occurred and many organelles were degraded. The pathogen probably secretes pectin decomposing enzymes to facilitate tissue penetration.

DE: ultrastructure-; fruit-crops; plant-pathology

OD: citrus-

ID: Xanthomonas-citri

BT: Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; Gram-negative-bacteria

AB: All of 5 fungicidal and antibiotic treatments significantly reduced canker incidence on lime but 0.0025% streptocycline was best.

DE: lime-; control-; fruit-crops; plant-pathology

OD: citrus-

ID: Xanthomonas-citri; streptocycline

BT: Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; Gram-negative-bacteria

AB: Resistance of X. citri, the agent of citrus canker, to 2-amino-1,3,4-thiadiazole (ATDA), TF-130 (related to ATDA) and streptomycin (SM) was examined. After 1 or 2 sprays with 1000 ppm ATDA or 100 ppm TF-130, lesions formed on intact leaves of Citrus natsudaidai. Increase in the ratio of SM resistance following spraying at 200 IU/ml was less than that of the 2 other compounds. When Washington navel orange trees were sprayed
During the field period, there was a significant increase in the ratio of resistant bacteria in lesions following 3 sprays of ATDA or TF-130 in the 1st year. After the winter of the 1st year, the ratio did not decrease. Both ATDA and TF-130 were more effective than Bordeaux in the 1st year but less effective in the 2nd and 3rd. No increase in the ratio of SM resistant bacteria or reduction of the effect of SM spray was observed.

DE: oranges; control; streptomycin; Bordeaux-mixture; fruit-crops; plant-pathology
OD: citrus
ID: Xanthomonas-citri; ATDA; TF-130
RN: 57-92-1; 8011-63-0
BT: copper-fungicides; fungicides; pesticides; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; Gram-negative-bacteria
CC: FF600; HH000
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Pathogen,-Pest-and-Parasite-Management-General
PT: Journal-article
CI: Biological Abstracts 57, 68683.
UD: 951116
AN: 741314231

Record 209 of 298 - CABPESTCD 1973-1988

TI: Studies on the symptoms of citrus canker formed on Satsuma mandarin fruit and existence of causal bacteria in the affected tissues.
OT: [Xanthomonas citri].
AU: Koizumi-M
AD: Minist. Agric. For., Okitsu, Shimizu, Shizuoka, Japan.
PY: 1972
LA: Japanese
LS: English
DE: fruit-crops; plant-pathology
OD: citrus
GE: Japan
ID: Satsuma-mandarin; Xanthomonas-citri
BT: Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; East-Asia; Asia; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; Gram-negative-bacteria
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
CI: Biological Abstracts 57, 68716.
UD: 951116
AN: 741314231

Record 210 of 298 - CABPESTCD 1973-1988

TI: Resistance of citrus to citrus canker caused by Xanthomonas citri (Hasse) Dowson: analysis of amino acids.
AU: Kishore-V; Chand-JN
AD: Haryana Agricultural University, Hissar, India.
PY: 1973
LA: English
AB: Biochemical analyses of healthy leaves and leaves inoculated with X. citri are presented for Citrus reticulata, C. sinensis, C. jambhiri and C. aurantifolia. The most resistant sp., C. reticulata, contained 13 amino acids whereas C. aurantifolia, which is susceptible, contained 17 amino compounds. C. aurantifolia and C. jambhiri (the next most susceptible) were the only spp. that contained beta-alanine and phenylalanine. Lysine and proline were present in C. reticulata, but absent in C. aurantifolia. The amino acid content was lower in infected than in healthy leaves, regardless of the species. The decrease was most marked for glutamine, threonine, serine, glycine, asparagine and leucine.
TI: Role of citrus leaf-miner (Phyllocnistis citrella Stainton), on the prevalence and severity of citrus canker (Xanthomonas citri (Hasse) Dowson).
AU: Sinha-MK; Batra-RC; Uppal-DK
AD: Department of Biology, Allahabad Agricultural Institute, Allahabad, Uttar Pradesh, India.
PY: 1972
LA: English
AB: At Abohar in the Punjab, India, in 1968, the relation between damage caused by the leaf-mining larvae of Phyllocnistis citrella Stnt. and the incidence of the canker caused by Xanthomonas citri [cf. RAE/A 56, 2321] was investigated in the field on 35 varieties of Citrus. In August-September, ten twigs profusely attacked by the Gracillariid and ten that were practically free from attack were tagged, and in November-December the number of leaves that showed mild, moderate or severe canker (up to 10%, 10-40% and over 40%, respectively, of the leaf area affected) was recorded twice. In the different varieties, 4.47-67.13% of the unmined and 19.02-85.57% of the mined leaves were cankered. In the most severely affected variety, the percentages of infected unmined leaves that were severely, moderately and mildly affected were 13.43, 25.37 and 61.20, respectively, as compared with 60.00, 29.55 and 10.45 for infected mined leaves. The pattern was similar in the other varieties. It is suggested that control of the disease (by antibodies and fungicides) would be improved if insecticides were used simultaneously against P. citrella.

ADDITIONAL ABSTRACT: In a survey of 35 citrus spp. and cvs the prevalence and severity of canker was greatly increased where there were injuries caused by P. citrella.
DE: arthropod-pests; fruits-; fruit-crops; subtropical-fruits; citrus-fruits; plant-diseases; agricultural-entomology
OD: Phyllocnistis-citrella; Citrus-; arthropods-
OE: India-; Indian-Punjab
ID: relation-of-canker; Xanthomonas-citri; relation-of-mining-by-Phyllocnistis-citrella; disease-complex; citrus-diseases; pest-relationships
BT: arthropods; invertebrates; animals; pests; Phyllocnistis; Phyllocnistidae; Lepidoptera; insects; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; South-Asia; Asia; India; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; Gram-negative-bacteria
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0024-9602
UD: 951116
AN: 740520641

Record 211 of 298 - CABPESTCD 1973-1988

TI: Citrus canker in Haryana.
AU: Kishore-V; Chand-JN
AD: Hissar, India.
Citrus canker (Xanthomonas citri) is widespread in the citrus-growing districts of Haryana. A survey in these areas showed that Citrus aurantifolia is the most susceptible species. In pathogenicity studies in which young seedlings of C. aurantifolia, C. reticulata, C. sinensis and C. jambhiri were inoculated with 8 X. citri isolates, all isolates caused typical disease symptoms, but 2 were more virulent than the others. Differences in susceptibility among the Citrus spp. tested were related to stomata number and size, on which data are presented.

Lesions on young fruit (60% developed) inoculated before late August are described; collapsed cells were cut off by phelloderm and at harvest few bacteria (Xanthomonas citri) were present. Lesions on fruit inoculated in early and in late September are also described. Their development appeared to be increased by strong winds and hot weather, and they contained more bacteria at harvest.

Citrus canker (Xanthomonas citri) was controlled by spraying at 10-day intervals from June to September with Blitox (copper oxychloride) + Tenac, each at 0.3%, or nickel chloride at 0.15%, after removing infected leaves and...
twigs. Nickel sulphate at 0.2% and sodium arsenite + copper sulphate, each at 0.1%, were also effective.

DE: Copper-oxychloride; Sodium arsenite; COPPER-SULFATE; control-; subtropical-fruits; citrus-fruits; fruit-crops

GE: India-

ID: Xanthomonas-citri-Tenac; Nickel-chloride; Nickel-sulphate; citrus-diseases; Xanthomonas-citri

RN: 1332-40-7; 7784-46-5; 7758-98-7

BT: copper-fungicides; fungicides; pesticides; arsenical-insecticides; insecticides; South-Asia; Asia; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; Gram-negative-bacteria

CC: FF600; HH000

CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Pathogen,-Pest-and-Parasite-Management-General

PT: Journal-article

IS: 0033-4324

UD: 951116

AN: 730313527

Record 215 of 298 - CABPESTCD 1973-1988

TI: Comparative studies between Xanthomonas citri (Hasse) Dow., pathogen of citrus canker and Xanthomonas citri (Hasse) Dow N.F. SP. aurantifolia, pathogen of "Calego lime canker".

AU: Namekata-T

AD: Escola Superior de Agricultura "Luiz de Queiroz", Piracicaba, Brazil.

SO: Boletim-de-Divulgacao,-Escola-Superior-de-Agricultura-"Luiz-de-Queiroz",-Universidade-de-Sao-Paulo. 1971, publ. 1973, No. 18, 102-104, 242-244.

PY: 1971

LA: English, Portuguese

AB: Pathogenicity tests using 15 citrus varieties showed that while the bacterial agent of canker B produced symptoms in all the varieties, the level of attack varied. A second bacterium, the causal agent of Mexican lime canker, attacked only five varieties. It is classified by the author as X. citri f. sp. aurantifolia.

DE: fruit-crops

OD: Citrus-; Xanthomonas-

GE: Brazil-

BT: Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; South-America; America

CC: FF020; FF600; HH600


PT: Abstract-only

UD: 951116

AN: 731609846

Record 216 of 298 - CABPESTCD 1973-1988


OT: Resumos de Teses 1971.

AU: Novaes-FV; Lovadini-LAC; Abreu-JM-de; Rovira-LA; Lima-VPMS

CA: Brazil, Universidade de Sao Paulo.

AD: Escola Superior de Agricultura "Luiz de Queiroz", Piracicaba, Sao Paulo.


PY: 1973

LA: Portuguese, English

AB: The bulletin includes English abstracts of the following papers: Influence of leaf removal and the period of storage on the commercial quality of sugar cane, by F.V. Novaes; Crude fibre, cellulose and lignin composition and cellulose fermentation in vitro as affected by plant maturity in sugar cane varieties, by L.A.C. Lovadini; The phenology of some beetle pests of cocoa in Espirito Santo State by J.M. de Abreu; Effects and symptoms of macronutrient deficiencies on the growth and mineral composition of cashew, by L.A. Rovira; and Processes to accelerate banana multiplication by V.P.M.S. Lima.
A freshly isolated soil Streptomyces sp. produced 2 actinomycin-C fractions. Both, especially the first, were effective at 20 p.p.m. against Pythium aphanidermatum on kidney beans and both, especially the second, controlled citrus canker (Xanthomonas citri). Both were phytotoxic to bean primary leaves but not to citrus leaves.

DE: antibiotics-; injuries-; fungicides-; production-; beans-; control-; vegetables-; vegetable-legumes; subtropical-fruits; citrus-fruits; fruit-crops; plant-pathology
OD: Pythium-aphanidermatum; Phaseolus-; Streptomyces-; citrus-; Fabaceae-
GE: Japan-
ID: Actinomycin-C; bean-(Phaseolus)-diseases; citrus-diseases; Xanthomonas-citri; actinomycin; actinomycin-C
BT: pesticides; Pythium; Peronosporales; Mastigomycotina; Eumycota; fungi; Fabaceae; Fabales; dicotyledons; angiosperms; Spermatophyta; plants; Streptomycetaceae; Actinomycetales; Firmicutes; bacteria; prokaryotes; Rutaceae; Sapindales; East-Asia; Asia; Xanthomonas; Pseudomonadaceae; Gracilicutes; Gram-negative-bacteria
CC: FF600; HH000
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Pathogen,-Pest-and-Parasite-Management-General
PT: Journal-article
UD: 951116
AN: 720303118

Record 219 of 298 - CABPESTCD 1989-1999

The influence of overhead, drip, and mist irrigation systems on the development of Asiatic citrus canker was
studied in simulated, Mexican-lime nurseries in Reunion Island. Overhead irrigation exacerbated the increase of disease incidence and severity caused by a streptomycin-resistant strain of Xanthomonas axonopodis pv. citri. The temporal development of Asiatic citrus canker for overhead irrigated nursery plots was best described by an exponential model, because disease incidence in these plots did not come close to an asymptote during the experimental period. This can be explained by the continuous production of new growth, susceptible to infection by X. a. pv. citri, and splash dispersal of X. a. pv. citri associated with overhead irrigation. Based on spatial correlation and spatio-temporal analyses, aggregated disease patterns were found irrespective of the irrigation system. In overhead-irrigated plots, the spread of X. a. pv. citri lacked directionality. Rainstorms of short duration and high intensity were apparently associated with disease increase in drip-irrigated plots. There is a need to improve cultivation practices in Reunion Island citrus nurseries to minimize Asiatic citrus canker incidence in nurseries and to minimize the introduction of X. a. pv. citri to new groves.

DE: irrigation-; nurseries-; planting-stock; subtropics-; tropics-; epidemiology-; plant-diseases; plant-pathogens; plant-pathogenic-bacteria; fruit-crops; plant-pathology
OD: Citrus-; Xanthomonas-axonopodis-pv.-citri; bacteria-
GE: Reunion-
BT: Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-axonopodis; Xanthomonas; Xanthomonadaceae; Gracilicutes; bacteria; prokaryotes; Indian-Ocean-Islands; Developing-Countries; Francophone-Africa
CC: JJ800; FF100; FF600
CD: Soil-Water-Management; Plant-Production; Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0929-1873
UD: 990816
AN: 991003268

Record 221 of 298 - CABPESTCD 1989-1999

TI: ITSC participates in IOCV conference.
AU: Vuuren-F-van; Luttig-M; van-Vuuren-F
AD: Disease Management division, South Africa.
PY: 1999
LA: English
LS: Afrikaans
AB: The presentations given by South African scientists at the 14th conference of the International Organization of Citrus Virologists (IOCV) held in Campinas, Brazil in September 1998 are listed. Highlights of other presentations at the conference are also listed: diseases present in South Africa (tristeza, psorosis, tatter leaf, blight, greening and citrus viroids) and diseases not present in South Africa (leprosis, citrus variegated chlorosis and citrus canker).
DE: plant-diseases; plant-pathogens; plant-pathology
OD: Citrus-; plant-viruses
GE: South-Africa
BT: Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; viruses; plant-pathogens; pathogens; Southern-Africa; Africa-South-of-Sahara; Africa; Developing-Countries; Threshold-Countries; Anglophone-Africa; Commonwealth-of-Nations
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Conference-paper; Journal-article
UD: 990816
AN: 991003142

Record 222 of 298 - CABPESTCD 1989-1999

TI: Citrus leaf miner: a factor for increase of pests and citrus canker.
OT: Lagarta minadora dos citros: um fator do aumento de pragas e cancro citrico.
AU: Rodrigues-JCV; Rossetti-V; Machado-MA; Sobrinho-JT; Lima-Nogueira-N-de; de-Lima-Nogueira-N
AD: Centro de Energia Nuclear na Agricultura, Universidade de Sao Paulo, Caixa Postal 96, 13400-970 Piracicaba
Larvae of the gracillariid Phyllocnistis citrella mine the adaxial and abaxial surfaces of newly-formed leaves. Citrus canker caused by Xanthomonas axonopodis pv. citri was found to be associated with P. citrella damage in Parana, Rio Grande do Sul, and Sao Paulo, Brazil. Citrus canker pustules were often observed over and along the entire length of larval tunnels on Citrus leaves and branches. It is suggested that P. citrella can disseminate and facilitate infection by X. axonopodis pv. citri. Elevated populations of Brevipalpus phoenicis, the mite vector of leprosis virus, were also observed in Citrus leaves with gracillariid damage.

DE: damage-; vectors-; transmission-; insect-pests; plant-pests; plant-diseases; plant-pathogenic-fungi; plant-pathogens; plant-pathogenic-bacteria; fruit-crops; agricultural-entomology; plant-pathology

OD: Phyllocnistis-citrella; Brevipalpus-phoenicis; Citrus-; Xanthomonas-; bacteria-; arthropods-

GE: Rio-Grande-do-Sul; Brazil-; Sao-Paulo; Parana-

ID: Xanthomonas-axonopodis-pv-citri; Xanthomonas-axonopodis

BT: Phyllocnistis; Phyllocnistidae; Lepidoptera; insects; arthropods; invertebrates; animals; Brevipalpus; Tenuipalpidae; Prostigmatia; mites; Acari; Arachnida; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; Brazil; Developing-Countries; Latin-America; South-America; America; Threshold-Countries; Xanthomonas

CC: FF600

CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants

PT: Journal-article

UD: 990516

AN: 991101147

Record 223 of 298 - CABPESTCD 1989-1999

TI: Effect of temperature on antibiotic production by Aspergillus spp. antagonistic to citrus canker pathogen.

AU: Masroor-MK; Sudhir-Chandra

AD: Department of Botany, University of Allahabad, Allahabad-211 002, India.


PY: 1995

LA: English

AB: In laboratory studies, temperature was found to affect antibiotic production. The antagonists Aspergillus clavatus, A. flavus and A. niger active against the citrus canker pathogen, Xanthomonas campestris pv. citri, were grown within a wide range of temperatures (10°C to 45°C). The results showed that 30°C was the most suitable temperature for antibiotic production.

DE: plant-pathogens; plant-diseases; plant-pathogenic-bacteria; antagonists-; antagonism-

OD: Aspergillus-; Citrus-; Aspergillus-clavatus; Aspergillus-niger; Aspergillus-flavus; Xanthomonas-campestris-pv.-citri

ID: Hyphomycetes; mitosporic-fungi

BT: Deuteromycotina; Eumycota; fungi; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Aspergillus; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes

CC: FF600; HH100

CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Biological-Control

PT: Journal-article

IS: 0971-0108

UD: 981116

AN: 981008447

Record 224 of 298 - CABPESTCD 1989-1999

TI: Citrus breeding - culture and selection of hybrids.

AU: Hsu-HsinTszu; Hwang-ASiang; Hsu-HT; Hwang-AS; Chen-YungWu (ed.); Chang-LinRen

AD: Chia-Yi Agricultural Experiment Station, TARI, Taiwan.
Citrus tankan cv. Tankan and C. grandis [C. maxima] cvs. Wentan and Fortune were used as major seed parents and pollinated with sweet oranges [C. sinensis] and mandarins [C. reticulata]. Overall, 24,000 seedlings were raised and zygotic seedlings of polyembryonic seed parents were identified from the nucellars by leaf morphology, embryo colour, and colour of young shoots. A total of 5,960 zygotic seedlings has been planted in the field since 1988 in high-density plantings. Flowering rate of seedlings of the major combinations within 5 years after planting varied from 60.7% (Fortune X Chandler) to 17.5% (Wentan X sweet oranges). The juvenile period seemed to be inherited mainly from seed parents. Seedlings became more resistant to citrus canker [Xanthomonas axonopodis] with age. Six promising hybrids with few seeds, early maturity, good quality and resistance to citrus canker were selected between 1994 and 1996 and improved in Taitung and Chia-Yi area for advanced selection.
Incidence of the Asiatic form of citrus canker in Iran.

Mostofi-Zadeh-R; Rahimian-H

Dept. of Plant Pathology, College of Agriculture, Tarbait-Modares University, Iran.


1996

English

Mexican lime (Citrus aurantifolia) fruits with raised corky spots similar to those caused by the citrus canker bacterium (Xanthomonas axonopodis pv. citri) were found in a grocery in Sari, Iran, in 1995. A gram-negative, rod-shaped bacterium with yellow mucoid colonies was isolated from the corky spots on sucrose nutrient agar. The metabolism and nutrition of the strain was characterized. Brown raised leaf spots were produced following wound inoculation of a broad selection of citrus species. The bacterium was reisolated from inoculated plants 1-2 weeks after appearance of the symptoms. The phenotypic features and wide host range indicated that this strain was the Asiatic form of X. axonopodis pv. citri and should be considered a serious threat to citrus production in both southern and northern provinces in Iran.

An epidemiological analysis of the spread of citrus canker in urban Miami, Florida, and synergistic interaction with the Asian citrus leafminer.

Gottwald-TR; Graham-JH; Schubert-TS

US Department of Agriculture, Agricultural Research Service, 2120 Camden Rd, Orlando, FL 32803, USA.


1997

English

After 12 main outbreaks of Asiatic citrus canker (ACC) caused by Xanthomonas axonopodis pv. citri (Xac), during 1986-92 in Florida, USA, a new outbreak of ACC was discovered in the residential Miami area in 1995. The feeding activities of the Asian leafminer Phyllocnistis citrella facilitates Xac infections. This generates large amounts of inoculum, promoting spread of the bacteria by rain splash. It was established that the present canker had existed in the Miami residential area for at least 2-3 years, but the origin or source of this introduction, which was demonstrated to differ from the previous outbreaks, remains unknown. Once the disease is established, the most important ways of disease spread are rain splash and wind. Individual meteorological events, such as thunderstorms, tornadoes, tropical storms and hurricanes have contributed to medium-to-long distance dispersal of Xac from the original focus. As a number of impediments to eradication presently exist, the eradication agency has adopted a new survey method which allows the early discovery of new infections the farthest from the focus and their immediate
elimination in an attempt to limit further spread of citrus canker.

DE: cankers-; epidemiology-; disease-control; plant-disease-control; control-; plant-diseases; plant-pathogens; plant-pathogenic-bacteria; vectors-; disease-vectors; disease-transmission; plant-pests; insect-pests; fruit-crops; plant-pathology; agricultural-entomology

OD: Citrus-; Phyllocnistis-citrella; bacteria-; arthropods-

GE: USA-; Florida-

ID: Xanthomonas-axonopodis-pv-citri

BT: Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Phyllocnistis; Phyllocnistidae; Lepidoptera; insects; arthropods; invertebrates; animals; prokaryotes; Developed-Countries; North-America; America; OECD-Countries; Southeastern-States-of-USA; Southern-States-of-USA; USA; Gulf-States-of-USA; South-Atlantic-States-of-USA

CC: FF600; HH000

CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Pathogen,-Pest-and-Parasite-Management-General

PT: Journal-article

IS: 0248-1294

UD: 980516

AN: 981002233

Record 228 of 298 - CABPESTCD 1989-1999

TI: Towards an improvement of citrus canker control in Reunion island.

AU: Pruvost-O; Verniere-C; Hartung-J; Gottwald-T; Quetelard-H

AD: Laboratoire de Phytopathologie, CIRAD/INRA, BP 180, 97455 Saint-Pierre Cedex, France.


PY: 1997

LA: English

LS: French, Spanish

AB: The citrus industry in Reunion started in the 1960s, with the introduction of propagation plant material from countries where citrus bacterial canker disease (CBCD) had never been reported. CBCD possibly occurred in Reunion at that time on wild citrus trees in Creole gardens. Control of CBCD in nurseries can potentially improve disease control in new grove planting as infected plants would be the main source of primary inoculum. Xanthomonas axonopodis pv. citri (Xac), associated with infected nursery citrus, is a target of international phytosanitary quarantine. A sensitive and specific detection technique of Xac was developed allowing detection of approximately 102-cells/g of citrus leaf. In most citrus growing areas in Reunion, year-round temperatures and annual rainfall are conducive to infection by Xac. Spatial and spatio-temporal studies confirmed that disease patterns were aggregated in the field over time. Increase of disease rates was greater in plots with overhead irrigation, and in the case of plots with drip irrigation, it was associated with natural rainfall. To minimize CBCD transmission to a new grove, a modernization scheme for local citrus plant production was proposed. Grapefruit plants produced according to this improved scheme have been planted under various environmental conditions to experimentally determine the durability of citrus canker control resulting from the use of disease-free plants combined with other integrated control measures. It is suggested that the improvement of the citrus nursery production scheme will essentially benefit citrus cultivars of low or moderate susceptibility to CBCD.

DE: epidemiology-; control-; plant-disease-control; plant-diseases; plant-pathogens; plant-pathogenic-bacteria; integrated-control; fruit-crops; subtropical-fruits; citrus-fruits; plant-pathology

OD: Citrus-; bacteria-

GE: Reunion-

ID: Xanthomonas-axonopodis-pv-citri

BT: Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; prokaryotes; Developing-Countries; Francophone-Africa; Indian-Ocean-Islands; Southern-Africa; Africa-South-of-Sahara; Africa

CC: FF600; HH300

CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Integrated-Pest-Management

PT: Journal-article

IS: 0248-1294

UD: 980516

AN: 981002232
Goat weed - a host of citrus canker (Xanthomonas campestris pv. citri).

Weeds commonly found in and around the citrus orchards of Assam Agricultural University, Assam, India, were surveyed for infection by the citrus canker pathogen, X. campestris pv. citri [X. axonopodis pv. citri], during 1993-95. Goat weed (Ageratum conyzoides), the most predominant weed species, was found to be highly infested with the bacterium, showing typical water soaked lesions. A pure culture of the bacterium was isolated from infected leaves of this weed and its pathogenicity was confirmed on goat weed and Assam lemon (Citrus limon). Repeated cross-inoculations of X. axonopodis pv. citri revealed that goat weed was highly susceptible, showing 90-100% disease incidence. Other commonly found weeds were also inoculated but failed to produce symptoms. It is concluded that since goat weed grows throughout the year in citrus orchards, it may be considered as an important host of X. axonopodis pv. citri and may serve as a significant source of primary inoculum for the next season.

Influence of environmental parameters on citrus canker incidence in Assam.

Studies during 1993 and 1994 showed that the highest incidence of citrus canker (Xanthomonas campestris pv. citri [X. axonopodis pv. citri]) was in August. A constant high incidence of the disease was observed during June to September in both years. During these months the highest temperatures, rainfall and RH were recorded depicting a positive correlation between these parameters with high disease incidence in the state.

Antibacterial activity of plant diffusate against Xanthomonas campestris pv. citri.
208 diffusates from various plants such as forest trees, herbs, shrubs, fruit trees, spices, vegetables, food legumes, fodder, oil seed, fibre crops, cereals and ornamentals were evaluated using an agar diffusion assay to determine their inhibitory action, if any, against X. campestris pv. citri [X. axonopodis pv. citri]. Diffusates from the majority of forest trees, herbs and shrubs showed an inhibitory effect against strain XC-100 of the bacterium. Diffusates from various parts of Phyllanthus emblica, Acacia nilotica, Sapindus mukorossi and Terminalia chebula, which exhibited an inhibition zone measuring 4.83-6.00 mm at 50 g/litre concentration, appeared to be the most effective. These diffusates showed an inhibitory effect even at a concentration of 1.25 g/litre. These diffusates, at concentrations of 50, 20 and 10 g/litre, were significantly (P<0.01) more effective in reducing the number of lesions on detached leaves and fruits of grapefruit cv. Frost Marsh, thus exhibiting protective as well as curative actions. Diffusates from higher plants, therefore, appear to be potential antimicrobial agents which could be used for the management of citrus canker disease.
Evaluation of the Biolog substrate utilization system to identify and assess metabolic variation among strains of Xanthomonas campestris pv. citri.

TI: Evaluation of the Biolog substrate utilization system to identify and assess metabolic variation among strains of Xanthomonas campestris pv. citri.
AU: Verniere-C; Pruvost-O; Civerolo-EL; Gambin-O; Jacquemoud-collet-JP; Luisetti-J
AD: Laboratoire de Phytopathologie, CIRAD/IRFA, 97455 Saint Pierre Cedex, Reunion Island.
PY: 1993
LA: English
AB: Metabolic fingerprints of 148 strains of X. campestris pv. citri originating from 24 countries and associated with various forms of citrus bacterial canker disease (CBCD) were obtained using the Biolog substrate utilization system. Metabolic profiles were used to attempt strain identification. Only 6.8% of the studied strains were correctly identified when the commercial Microlog 2N data base was used alone. When the data base was supplemented with data from 54 strains of X. campetris pv. citri (40 CBCD-A strains, 8 CBCD-B strains, and 6 CBCD-C strains) and data from 43 strains of X. campestris associated with citrus bacterial sport disease, the percentage of correct identifications was 70%. Thus, it is recommended that users supplement the commercial data base with additional data prior to using the program for identification purposes. The utilization of Tween 40 can help to differentiate strains associated with CBCD and citrus bacterial spot disease. These results confirmed the separation of X. campetris pv. citri into different subgroups (strains associated with Asiatic citrus canker (CBCD-A), cancrosis B (CBCD-B), and Mexican lime canker (CBCD-C)). The utilization of L-fucose, D-galactose and alaninamide can be used as markers to differentiate strains associated with these groups. A single strain associated with baceriosis of Mexican lime in Mexico (CBCD-D) was closely similar to CBCD-B strains.
DE: plant-diseases; plant-pathogens; plant-pathogenic-bacteria; strains-; metabolism-
OD: Xanthomonas-campestris-pv.-citri
BT: Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes
CC: FF600; ZZ900
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Techniques-and-Methodology
PT: Journal-article
IS: 0032-0870
UD: 970816
AN: 971004238

Phylloplane microflora of citrus and their role in management of citrus canker.

TI: Phylloplane microflora of citrus and their role in management of citrus canker.
AU: Pabitra-Kalita; Bora-LC; Bhagabati-KN; Kalita-P
AD: Department of Plant Pathology, Assam Agricultural University, Jorhat 785 013, India.
PY: 1996
LA: English
AB: Four species of bacteria (Bacillus subtilis, B. polymyxa, Pseudomonas fluorescens and Serratia marcescens) and 3 species of fungi (Aspergillus terreus, Trichoderma viride and Trichoderma harzianum) isolated from the phylloplane of lemon cv. Assam lemon, inhibited in vitro growth of Xanthomonas campestris pv. citri, the incitant of citrus canker. When the antagonists were tested for their efficacy in the control of citrus canker by applying them over crop foliage of Assam lemon, they also reduced citrus canker incidence under field conditions. B. subtilis was the most effective antagonist exhibiting max. (14.7 mm) inhibition of the pathogen and reducing the disease incidence by 61.9%.
DE: biological-control-agents; plant-disease-control; antagonists-; lemons-; biological-control; diseases-; control-; disease-control; fruit-crops; subtropical-fruits; citrus-fruits; plant-pathogenic-bacteria; plant-pathology
OD: citrus-limon; citrus-; Xanthomonas-campestris-pv.-citri; Bacillus-subtilis; Bacillus-polymyxa; Pseudomonas-fluorescens; Serratia-marcescens; Aspergillus-terreus; Trichoderma-viride; Trichoderma-harzianum; bacteria-

Record 234 of 298 - CABPESTCD 1989-1999

TI: Phylloplane microflora of citrus and their role in management of citrus canker.
AU: Pabitra-Kalita; Bora-LC; Bhagabati-KN; Kalita-P
AD: Department of Plant Pathology, Assam Agricultural University, Jorhat 785 013, India.
PY: 1996
LA: English
AB: Four species of bacteria (Bacillus subtilis, B. polymyxa, Pseudomonas fluorescens and Serratia marcescens) and 3 species of fungi (Aspergillus terreus, Trichoderma viride and Trichoderma harzianum) isolated from the phylloplane of lemon cv. Assam lemon, inhibited in vitro growth of Xanthomonas campestris pv. citri, the incitant of citrus canker. When the antagonists were tested for their efficacy in the control of citrus canker by applying them over crop foliage of Assam lemon, they also reduced citrus canker incidence under field conditions. B. subtilis was the most effective antagonist exhibiting max. (14.7 mm) inhibition of the pathogen and reducing the disease incidence by 61.9%.
DE: biological-control-agents; plant-disease-control; antagonists-; lemons-; biological-control; diseases-; control-; disease-control; fruit-crops; subtropical-fruits; citrus-fruits; plant-pathogenic-bacteria; plant-pathology
OD: citrus-limon; citrus-; Xanthomonas-campestris-pv.-citri; Bacillus-subtilis; Bacillus-polymyxa; Pseudomonas-fluorescens; Serratia-marcescens; Aspergillus-terreus; Trichoderma-viride; Trichoderma-harzianum; bacteria-
Effect of several fungicides for control of citrus canker (Xanthomonas citri (Hasse) Dowson).

Zhang-KinShan; He-ShiZhong; Huang-Zhong; Zhang-KS; He-SZ; Huang-Z

State Lixin Citrus Orchard, Fuchuan, Guangxi, China.


1996

Chinese

Copper hydroxide (as Koshad), carbendazim, sulfuric acid, streptomycin and Bordeaux mixture were tested for control of X. citri [X. axonopodis pv. citri] on 6-year-old trees of Robertson Navel orange. The results showed that copper hydroxide gave the best disease control at 800 times concn.

The effects of windbreaks and copper (Cu) bactericide applications alone and in combination on the spread of X. c. pv. citri and incidence of citrus canker were tested in Argentina during 1990 and 1991. The monomolecular temporal model was the most appropriate for describing citrus canker disease progress. The monomolecular rate of disease progress was significantly less for Cu bactericide and windbreaks compared with an untreated control. However, more significant reductions of disease progress occurred with the use of windbreaks alone or in combination with Cu bactericide. Disease gradients were significantly less extensive when a Cu bactericide was used compared with untreated control plots, with significant additional reductions when windbreaks were employed. Temporal and spatial analyses of citrus canker epidemics suggested that the use of windbreaks was a more effective disease control strategy than the use of a Cu bactericide and significantly reduced temporal disease increase and spatial spread of citrus canker over time. As expected, Cu bactericide did reduce disease increase and spread but not as effectively as windbreaks. Temporal increase and spatial spread of disease associated with A-strain and B-strain of X. c. pv. citri in lemon plantings were not significantly different suggesting that for a susceptible host such as
lemon, the 2 strains are equivalent in virulence and epidemiological potential.

DE: plant-diseases; plant-pathogens; plant-pathogenic-bacteria; citrus-fruits; subtropical-tree-fruits; chemical-control; plant-disease-control; windbreaks--; copper--; bactericides--; lemons--; integrated-control; spread--; control--; fruit-crops; plant-pathology

OD: citrus-limon; citrus--; Xanthomonas-campestris-pv.-citri; bacteria-

GE: Argentina-

RN: 7440-50-8

BT: Citrus; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; Threshold-Countries; Developing-Countries; Latin-America; South-America; America

CC: FF600; HH400; HH300

CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Control-by-Chemicals-and-Drugs; Integrated-Pest-Management

PT: Journal-article

IS: 0041-3216

UD: 960416

AN: 961002010

Record 237 of 298 - CABPESTCD 1989-1999

TI: Genetic analysis of hrp-related DNA sequences of Xanthomonas campestris strains causing diseases of citrus.

AU: Leite-RP Jr.; Egel-DS; Stall-RE

AD: Department of Plant Pathology, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, Florida 32611, USA.


PY: 1994

LA: English

AB: The hrp gene cluster of strains of X. campestris that cause diseases of citrus was examined by Southern hybridization of genomic DNA and by restriction endonuclease analysis of enzymatically amplified DNA fragments of the hrp gene cluster. The hrp genes were present in all strains of the pathovars of X. campestris tested, including strains of the 3 aggressiveness groups of the citrus bacterial spot pathogen, X. campestris pv. citrumelo, X. campestris pv. citri strains in groups A, B and C, which cause citrus canker A, B and C, respectively, each produced characteristic restriction banding patterns of amplified hrp fragments. The restriction banding patterns of all strains within each group were identical. In contrast, restriction fragment length polymorphism was evident among strains of the moderately and weakly aggressive groups of X. campestris pv. citrumelo, X. campestris pv. citrumelo strains in the highly aggressive group had a homogeneous restriction banding pattern. The characteristic banding patterns obtained for each bacterial group indicated that X. campestris strains causing disease in citrus can be reliably differentiated and identified by restriction analysis of amplified DNA fragments of the hrp gene cluster. In addition, the phylogenetic analysis based on the restriction banding patterns of amplified fragments suggests a polyphyletic relationship of the hrp genes among the strains of X. campestris that cause disease in citrus.

DE: subtropical-tree-fruits; plant-diseases; plant-pathogens; plant-pathogenic-bacteria; DNA--; genes--; strains--; molecular-genetics; nucleotide-sequences; restriction-fragment-length-polymorphism; techniques--; differentiation--; fruit-crops; plant-pathology

OD: citrus--; Xanthomonas-campestris; bacteria--

BT: pathogens; bacteria; prokaryotes; plant-pathogens; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas; Pseudomonadaceae; Gracilicutes

CC: FF600; WW000

CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Biotechnology

PT: Journal-article

IS: 0099-2240

UD: 960216

AN: 961000325

Record 238 of 298 - CABPESTCD 1989-1999

TI: Rapid identification of a second outbreak of asiatic citrus canker in the Northern Territory using the polymerase
In May 1993, symptoms of asiatic citrus canker were found on West Indian lime, lemon and grapefruit trees in a mixed citrus orchard at Lambell's Lagoon, near Darwin, Northern Territory, close to the site of a previous (1991) canker outbreak. Symptoms occurred on the spring growth flush at the start of the wet season (Oct. 1992). The time lag between the appearance of symptoms and collection of material made it difficult to isolate the causal agent directly from the lesions, largely due to the overgrowth of secondary organisms. To overcome this difficulty, a method for detecting Xanthomonas campestris pv. citri was used based on PCR. A primer pair, known to amplify only DNA from group A of X. c. pv. citri, directed the amplification of a DNA fragment of the expected size (222 bp) from crude exudates prepared from leaf or fruit lesions, from mixed cultures, from inoculated citrus leaves and from positive control DNAs prepared from reference cultures of X. c. pv. citri. A second primer pair and a duplex PCR were then tested. These also generated products of the expected sizes, and hence a presumptive diagnosis of asiatic citrus canker was made. This is thought to be the first use of PCR technology to diagnose a field outbreak of citrus canker. The total time from specimen preparation to detection of PCR products was <7 h. Colonies resembling X. c. pv. citri were eventually recovered from only 2 of 11 symptomatic samples. A sensitive genomic fingerprinting technique provided strong evidence that the 1991 outbreak was the source of the current infestation.

DE: subtropical-tree-fruits; plant-diseases; plant-pathogens; plant-pathogenic-bacteria; biochemical-techniques; limes-; grapefruits-; lemons-; identification-; techniques-; molecular-genetics; polymerase-chain-reaction; DNA-fingerprinting; fruit-crops; plant-pathology
OD: citrus-; Xanthomonas-campestris-pv.-citri; bacteria-; Citrus-paradisi
GE: Australia-; Northern-Territory
BT: pathogens; bacteria; prokaryotes; plant-pathogens; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Citrus; Commonwealth-of-Nations; Australasia; Oceania; Developed-Countries; OECD-Countries; Australia
CC: FF600; ZZ900; WW000
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Techniques-and-Methodology; Biotechnology
PT: Journal-article
IS: 0815-3191
UD: 951216
AN: 952311802

Record 239 of 298 - CABPESTCD 1989-1999

TI: A further outbreak of citrus canker near Darwin.
AU: Broadbent-P; Pitkethley-RN; Barnes-D; Bradley-J; Dephoff-C; Civerolo-EL; Gillings-MR; Fahy-PC
AD: NSW Agriculture, Biological and Chemical Research Institute, PMB 10, Rydalmere, New South Wales 2116, Australia.
SO: Australasian-Plant-Pathology. 1995, 24: 2, 90-103; 22 ref.
PY: 1995
LA: English
AB: Citrus canker (Xanthomonas campestris pv. citri Group A) was detected in a pummelo orchard at Lambell's Lagoon near Darwin, Northern Territory, Australia, in 1991. All citrus trees in the orchard were eradicated. Surveys of horticultural holdings at Lambell's Lagoon in 1992 failed to detect symptoms of citrus canker. Leaf washings from trees in each orchard failed to detect X. c. pv. citri using leaf enrichment or immunofluorescence techniques. Other xanthomonad isolates were obtained and these produced a slight callusing with watersoaking around wounds made in detached leaves of Duncan grapefruit. In 1993, canker symptoms were observed on lime and grapefruit twigs and fruit in a mixed citrus orchard 500 m from the 1991 outbreak site. This outbreak was confirmed as Group A of X. c. pv. citri on the basis of pathogenicity tests, fatty acid analyses of recovered bacteria, immunofluorescence microscopy and by genomic DNA fingerprinting.
DE: subtropical-tree-fruits; plant-diseases; plant-pathogens; plant-pathogenic-fungi; grapefruits-; pummelos-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
AB: A table of species and pathovars of Xanthomonas with their natural hosts and host families is given in the introduction. The symptoms, host range, isolation and detection methods, geographical distribution, economic importance, epidemiology and control measures for some of the major diseases caused by Xanthomonas are discussed in separate sections as follows: Xanthomonas campestris pathovars on cassava: cause of bacterial blight and bacterial necrosis (by H. Maraite); Xanthomonas campestris pv. malvacearum: cause of bacterial blight of cotton (by A. Zomorodian and K. Rudolph); Xanthomonas oryzae pathovars on rice: cause of bacterial blight and bacterial leaf streak (by T.W. Mew); Xanthomonas campestris pv. phaseoli: cause of common bacterial blight of bean [Phaseolus vulgaris] (by A.K. Vidaver); Xanthomonas campestris pv. glycines: cause of bacterial pustule of soyabean (by S. Hokawat and K. Rudolph); Xanthomonas campestris pv. citri: cause of citrus canker (by R.E. Stall and E.L. Civerolo); Xanthomonas campestris pv. campestris: cause of black rot of crucifers (by N.W. Schaad and A. Alvarez); Xanthomonas campestris pv. graminis: cause of bacterial wilt of forage grasses (by F. Leyns); Xanthomonas campestris pv. vesicatoria: cause of bacterial spot of tomato and pepper [Capsicum] (by R.E. Stall); Xanthomonas campestris pv. pruni: cause of Prunus bacterial spot (by E.L. Civerolo and M.J. Hattingh); Xanthomonas populi: cause of bacterial canker of poplar [Populus] (by M. Ride); Xanthomonas fragariae: cause of angular leaf spot of strawberry (by B. Rat); Xanthomonas albilineans: cause of leaf scald of sugarcane (by P. Rott); Xanthomonas campestris pathovars on cereals: cause of leaf streak or black chaff diseases (by E. Duveiller and H. Maraite); Xanthomonas campestris pv. pelargonii: cause of bacterial leaf spot and stem rot on Pelargonium spp. (by W. Pagel); Xanthomonas campestris pv. hyacinthi: cause of yellow disease in Hyacinthus (by J. van Doorn and E.J.A. Roebroeck); and Xanthomonas campestris pv. mangiferaeindicae: cause of bacterial black spot of mangoes (by O. Provost and B.Q. Manicom).
During Jul. 1988-Dec. 1990, the effects of foliar sprays of 100 p.p.m. streptocycline + 0.1% copper oxychloride on X. c. pv. citri infection of 6-year-old Kagzi lime was investigated in Maharashtra, India. Sprays were applied at intervals of 7, 15 and 21 d and the most cost effective chemical control was achieved by spraying at intervals of 7 or 15 d.

The connective part of hypocotyls of Citrus natsudaidai cv. Kawano-natsudaidai (moderately resistant to citrus tristeza closterovirus) and the orange cv. Fukuhara orange grafted together was cut horizontally. The hypocotyl of Kawano-natsudaidai was further cut at an angle of 60° against the stem direction. The cut surface of the hypocotyl was treated with plant growth hormones and each treated hypocotyl was then covered with paraffin film and grown under light in the laboratory. A slowly-growing adventitious bud produced on the cut surface of Kawano-natsudaidai near the border of the 2 cultivars was selected and grown in a greenhouse. A synthetic periclinal chimaera composed of germ layers II and III of Kawano-natsudaidai (N) covered with layer I of Fukuhara orange (F) was easily obtained by treatment with a mixture of 50 μM gibberellin GA3, 1 μM 6-benzylaminopurine [benzyladenine] and 1 μM NAA. The name Citrus natsudaidai + sinensis and the variety name 'NF-5' are proposed for this chimaera.
Periclinal chimera of citrus resistant to citrus canker and citrus tristeza virus: chimerism and composition of fruit tissue in the synthetic periclinal chimeras 'FN-1' and 'NF-3'.

Ohtsu-Y; Kuhara-S

Fruit Tree Research Station, Kuchinotsu Branch, Ministry of Agriculture, Forestry and Fisheries, Kuchinotsu, Nagasaki 859-25, Japan.


Fruit tissues in these 2 chimaeras was quantitatively analysed with HPLC for 4 flavanone glycosides. The constitution of NF-1 was N-F-F for the 1st, 2nd and 3rd germ layers, respectively, where N resembled the chromatogram of cv. Kawano-natsudaidai and F that of Fukuhara orange. The constitution of NF-3 was F-N-N. The scientific names Citrus sinensis + natsudaidai for NF-1 and C. natsudaidai + sinensis for NF-3 are proposed and FN-1 is suggested as a new varietal name for NF-1. The proportions of the flavanone glycosides of the mother cultivars corresponded closely to the respective fruit tissues of FN-1 and NF-3. These results suggest that introducing tissue of a disease resistant cultivar to the 2nd and 3rd germ layers, and tissue of a high quality cultivar to the 1st layer, will make a chimaera tree with both disease resistance to canker [Xanthomonas campestris pv. citri] and citrus tristeza closterovirus, and high quality fruit.

Results of screening tests and applications of chemicals in controlling citrus canker.

Liu-S

Plant-Quarantine-Shanghai. 1994, 8: 1, 13-14.

These results suggest that introducing tissue of a disease resistant cultivar to the 2nd and 3rd germ layers, and tissue of a high quality cultivar to the 1st layer, will make a chimaera tree with both disease resistance to canker [Xanthomonas campestris pv. citri] and citrus tristeza closterovirus, and high quality fruit.
The incidence of citrus canker Xanthomonas citri (Dowson) in Assam.

AU: Das-BC; Dubey-LN
AD: Citrus Research Station, Assam Agricultural University, Tinsukia, Assam, India.
SO: Journal-of-Research-Assam-Agricultural-University. 1989, 10: 1-2, 80-82; 8 ref.
PY: 1989
LA: English
AB: The incidence of severity of canker (X. [campestris] pv. citri) on 6 commonly grown Citrus spp. were recorded for both seedlings 4-5 yr old and fruit-bearing trees >10 yr old. In the older group, the disease was most severe on Kagzi lime (C. aurantiifolia), Rangpur lime (C. limon) and Assam lemon.
DE: lemons-; limes-; plant-pathogenic-bacteria; plant-pathology
OD: citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: India-; Assam-
BT: plant-pathogens; pathogens; bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Developing-Countries; Commonwealth-of-Nations; South-Asia; Asia; India
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0258-1728
UD: 951216
AN: 942301395

Notes on the present state of citrus canker.

OT: Notas de actualidad sobre el canker de los citricos.
AU: Valle-Valdes-N-del; Del-Valle-Valdes-N
AD: Estacion Experimental de Citricos, Jaguey Grande, Matanzas, Cuba.
SO: Centro-Agricola. 1988, 15: 2, 34-40, 56; 5 ref.
PY: 1988
LA: Spanish
LS: English
AB: This paper was presented at the International symposium on citrus canker (Xanthomonas campestris pv. citri) and blight disease held on 16-18 Jun. 1987 in Sao Paulo, Brazil.
DE: Plant-diseases
OD: Citrus-; Xanthomonas-campestris-pv.-citri
ID: International-symposium-on-citrus-canker-and-blight
BT: Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Conference-paper; Journal-article
UD: 951216
AN: 932340438
Differential host range reaction of citrus and citrus relatives to citrus canker and citrus bacterial spot determined by leaf mesophyll susceptibility.

Gottwald-TR; Graham-JH; Civerolo-EL; Barrett-HC; Hearn-CJ

USDA, ARS, Orlando, FL 32803, USA.

Plant-Disease. 1993, 77: 10, 1004-1009; 37 ref.

The leaf mesophyll susceptibility of 54 citrus species, cultivars and relatives to Xanthomonas campestris pv. citrumelo, the cause of citrus bacterial spot, was evaluated in Hastings, Florida, USA, during 1989 and 1990. A similar host range of 53 citrus species, cultivars and relatives was tested in Beltsville, Maryland, USA, during 1991 to compare their differential susceptibility to X. c. pv. citri, which causes citrus canker, and to X. c. pv. citrumelo by inoculations on foliage of the same trees in replicated field plots. Field-grown trees were pruned to stimulate synchronous leaf flush for inoculation by a modified pinprick method. Lesion size at 60 d (Hastings plots) or 45 d (Beltsville plots) postinoculation was used to quantify leaf mesophyll susceptibility. For X. c. pv. citrumelo inoculations, lesion expansion was greatest on cultivars of trifoliate orange hybrids (Citrus paradisi and C. sinensis X Poncirus trifoliata). Smaller lesions formed on Citrus species such as grapefruit, sweet orange, sour orange, mandarin, lemon and their hybrids, with the exception of Key lime, which developed lesions similar to those formed on trifoliate hybrids. Susceptibility of most citrus types to X. c. pv. citri was more general. Lesion sizes resulting from pinprick inoculations with X. c. pv. citri were not significantly different among Citrus spp. and hybrids, indicating a general susceptibility of leaf mesophyll. Smaller lesions generally formed on citrus relatives, including some cultivars of trifoliate orange. It is concluded that as pinprick inoculations cause wounds and open the leaf mesophyll to direct colonization by bacteria, this method bypasses stomatal infection and does not consider other factors that may affect field resistance.
Citrus canker.

The origin of citrus canker, its distribution and economic importance, symptoms, histopathology, aetiology (Xanthomonas campestris pv. citri), the host-pathogen interaction, disease cycle, survival of the pathogen, inoculation and disease rating, epidemiology, resistance, management and future prospects are reviewed.

Use of phages for identifying the citrus canker bacterium Xanthomonas campestris pv. citri in Taiwan.

Phages CP115 and CP122, isolated from canker lesions on grapefruit and Liucheng sweet orange, respectively, showed a high degree of specificity with respect to lysis of test bacterial strains. When used together, they lysed 135 of 138 X. campestris pv. citri strains isolated from the canker lesions on leaves, twigs and fruits of various citrus species, cultivars and hybrids grown throughout Taiwan, but they did not lyse other X. campestris pathovars and other phytopathogenic bacteria, nor other bacteria isolated from soil, clinical or environmental samples. Of 252 CP115/CP122-sensitive and 78 CP115/CP122-resistant bacterial strains with colony characteristics typical of, or similar to, those of X. campestris pv. citri, isolated from canker lesions of various citrus plants in different growing regions in Taiwan, 99.2% and 97.4% of the strains were pathogenic and non-pathogenic, respectively, when inoculated into Liucheng sweet orange or Mexican lime. It is concluded that the combined use of phages CP115 and CP122 is applicable for identifying X. campestris pv. citri in Taiwan.
Study on the integrated management of citrus canker.
AU: Fang-YM; Zhang-YX
AD: Agricultural Research Institute of Nanpin Prefecture, Fujian Province, China.
PY: 1992
LA: Chinese
LS: English
AB: In trials carried out during 1985-89, Jaoantong 14% AS provided good control of citrus canker, caused by Xanthomonas campestris pv. citri. Opt. control was achieved by spraying when the spring, summer and autumn shoots were 4-5, 6-7 and 5-6 cm long, respectively, and when the fruits had a diam. of 0.8-1.0, 1.8-2.0 and 2.8-3.0 cm. In seriously diseased orchards, a single control method was ineffective, but integrated management reduced mortality and increased yield and fruit quality.
DE: control-; disease-control; subtropical-fruits; citrus-fruits; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
ID: Jaoantong
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes
CC: FF600; HH000
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Pathogen,-Pest-and-Parasite-Management-General
PT: Journal-article
UD: 951216
AN: 932332996

Perceived vulnerability of citrus to canker in the major citrus growing areas of Australia.
AU: Broadbent-P
AD: NSW Agriculture, Biological and Chemical Research Institute, PMB 10, Rydalmere, NSW 2116, Australia.
PY: 1992
LA: English
AB: X. campestris pv. citri, the cause of citrus canker, has not been detected in the major citrus growing areas of Australia, but recent isolated findings of canker A on Thursday Island (1984-85) and near Darwin (1990) have raised concerns about the vulnerability of citrus in the main citrus growing areas to the introduction of canker. An analysis of weather records indicate that, if introduced, canker could be serious at Gayndah in the Central Burnett area of Queensland and at Kulnura in coastal New South Wales. In the more arid areas of the Riverland (Loxton, Renmark), Sunraysia (Mildura) and the mid-Murray area of Kerang and the Murrumbidgee irrigation area (Griffith), a less favourable environment for canker development exists.
DE: environmental-factors; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: Australia-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Australasia; Oceania
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0815-3191
UD: 951216
A total of 28 carbon sources were assessed for their effects on the production of antibiotics by 3 species (Aspergillus clavatus, A. flavus and A. niger), antagonistic to the citrus canker pathogen (Xanthomonas campestris pv. citri). Each of the antagonists could utilize a range of C sources. Xylose was the most suitable source for antibiotic production by A. niger, L(+) arabinose for A. flavus, while L(+) rhamnose was best for A. clavatus. Glucose, fructose and mannose supported good antibiotic production as did the disaccharides apart from lactose. A. clavatus and A. niger were able to utilize trisaccharides, polysaccharides and alcohols. A number of organic acids failed to support antibiotic production by the antagonists.
susceptible cultivars, lesion development was often correlated with bacterial populations at 168 h, but these factors were not correlated in cultivars resistant to bacterial spot. Thus, resistance of citrus leaf tissue was expressed not as reduction in the number of bacteria that penetrated through stomata, but as a reduction in bacterial growth after 72 h.

DE: varietal-reactions; infection-; resistance-; Disease-resistance; Mandarins-; Oranges-; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; Xanthomonas-campestris; bacteria-
ID: Xanthomonas-campestris-pv-citrumelo
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes
CC: FF600; HH600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Host-Resistance-and-Immunity
PT: Journal-article
IS: 0031-949X
UD: 951216
AN: 932327608

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TI: New citrus cultivar 'Kousyun Ponkan'.
AU: Yoshida-T; Ueno-I; Shichijo-T; Yamada-Y; Kihara-T; Nishiura-M; Hidaka-T; Ito-Y; Nesumi-H; Iwasaki-T
AD: Okitsu Branch, Fruit Tree Research Station, Shimizu, Shizuoka 424-02, Japan.
PY: 1991
LA: Japanese
LS: English
AB: The Citrus reticulata cv. Kousyun Ponkan, developed from a nucellar seedling, has vigorous trees with alternate bearing. It is resistant to citrus scab [Elsinoe fawcettii], citrus canker [Xanthomonas campestris pv. citri] and citrus tristeza closterovirus. The fruits weigh about 130 g and are oblate, with light-orange to orange, easy to peel rind. The flesh is juicy, light orange to orange, with a good flavour and 13% average soluble solids content. There are 5-15 polyembryonic seeds/fruit. The fruits mature in late December to mid-January.
DE: Mandarins-; Disease-resistance; varieties-; cultivars-; characteristics-; subtropical-fruits; citrus-fruits; fruit-crops
OD: Elsinoe-fawcettii; Xanthomonas-campestris-pv.-citri; Citrus-tristeza-closterovirus; Citrus-reticulata; Citrus-
GE: Japan-
ID: Kousyun-Ponkan
BT: Elsinoe; Dothideales; Ascomycotina; Eumycota; fungi; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; closterovirus-group; plant-viruses; viruses; Citrus; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; East-Asia; Asia
CC: FF020; HH600
CD: Plant-Breeding-and-Genetics; Host-Resistance-and-Immunity
PT: Journal-article
IS: 0385-2326
UD: 951216
AN: 931634415

Record 256 of 298 - CABPESTCD 1989-1999

TI: Compatatability of fungicides and bactericide with insecticides in the control of citrus canker and leafminer in acidlime.
AU: Vekateswarlu-C; Ramapandu-S
AD: Citrus Improvement Project, S.V. Agril. College Campus, Tirupati-517 302, Andhra Pradesh, India.
PY: 1992
LA: English
AB: Spraying fenvalerate followed by Bordeaux mixture after 3 days recorded least infestation (1.29%) of acidlime (Citrus) in Andhra Pradesh, India, with Phylocnistis citrella in 1990, which was on a par with plots sprayed with
monocrotophos followed by Bordeaux mixture after 3 days, and streptomycin + tetracycline + copper oxychloride + fenvalerate. Plots sprayed with streptomycin + tetracycline + copper oxychloride recorded least intensity of canker (caused by Xanthomonas campestris pv. citri), followed by those treated with this mixture + fenvalerate. This mixture + fenvalerate was the most effective against both the phyllocnistid and canker.

DE: subtropical-fruits; insect-pests; fungicides-; bactericides-; pesticide-mixtures; monocrotophos-; fenvalerate-; control-; chemical-control; pest-control; disease-control; citrus-fruits; fruit-crops; agricultural-entomology
OD: Lepidoptera-; Phyllocnistidae-; Citrus-; Phyllocnistis-citrella; Xanthomonas-campestris-pv.-citri; arthropods-
GE: India-; Andhra-Pradesh
RN: 6923-22-4; 51630-58-1
BT: arthropod-pests; pests; animals; arthropods; invertebrates; insects; pesticides; organophosphate-insecticides; organophosphorus-insecticides; insecticides; pyrethroid-insecticides; Lepidoptera; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Phyllocnistis; Phyllocnistidae; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; bacteria; prokaryotes; South-Asia; Asia; India
CC: FF600; HH000; HH400
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Pathogen,-Pest-and-Parasite-Management-General; Control-by-Chemicals-and-Drugs
PT: Journal-article
IS: 0253-4355
UD: 951216
AN: 921177114

Record 257 of 298 - CABPESTCD 1989-1999

TI: Spatial and spatiotemporal autocorrelation analysis of citrus canker epidemics in citrus nurseries and groves in Argentina.
AU: Gottwald-TR; Reynolds-KM; Campbell-CL; Timmer-LW
AD: USADA, ARS, Horticultural Research Laboratory, Orlando, FL, USA.
SO: Phytopathology. 1992, 82: 8, 843-851; 24 ref.
PY: 1992
LA: English
AB: Spatial and spatiotemporal (ST) patterns of citrus canker were examined in 3 nurseries and 2 groves in Argentina. The centre plant in each plot was inoculated with Xanthomonas campestris pv. citri, and disease was allowed to progress for 2 growing seasons. Disease assessments were made at about 21-d intervals. Final disease incidence was >90% in all 3 nurseries and reached 69 and 89% for orange (Citrus sinensis) and grapefruit (C. X paradisi) groves, respectively. For nursery plots, each quadrat was represented by disease counts, i.e., the number of diseased leaves, in a 6-plant row segment. For grove plots, each individual tree was considered a quadrat because of the large number of leaves per tree. Data from each assessment date were analysed by spatial correlation analysis and by ST autocorrelation analysis. Changes in significantly correlated spatial lags closely followed the changes in the disease progress curves for each plot. Proximity patterns in all 3 nurseries changed little during the first 3 to 4 assessments and then became more complex, often with noncontiguous elements that indicated the formation of secondary foci. Noncontiguous elements remained until the last few assessments, when they eroded and the proximity patterns generally became larger and contiguous as the numerous foci coalesced. Disease incidence increased more rapidly in the grove plots than in the nursery plots. Spatial proximity patterns of disease for the grapefruit grove plot, corresponding to assessment dates immediately after a rain-storm with highwinds, were elongated in a north-south direction. In contrast, spatial proximity patterns in the orange grove plot were more radially symmetrical until later in the epidemic, when they became more elongate in the north-south orientation and a few noncontiguous elements developed. ST autocorrelations and partial autocorrelations from the ST autocorrelation analysis of nurseries and groves were generally highest with a square proximity pattern. For citrus nurseries, ST autocorrelations and partial autocorrelations were consistent over time. ST autocorrelations decayed rapidly over spatial lags, but remained significant to 4 temporal lags. Therefore, the ST transfer function for citrus nurseries infected with citrus canker was represented by a ST autoregressive integrated moving-average (STARIMA) model, STARIMA(0,4,1,1). The ST partial autocorrelations were similar for both grove plots, indicating a similarity in the autoregressive components of each grove and, thus, a STARIMA model structure, but the 2 groves differed in inclusion of moving-average terms. For the orange grove, autocorrelations for the first temporal lag decayed slowly over the first 3 spatial lags, whereas the autocorrelation for the first temporal lag in the grapefruit grove decayed rapidly over spatial lags. Also, significant moving-average effects were estimated to
extend to 2 temporal lags in the grapefruit grove data but to only 1 in the orange grove data. Thus, STARIMA model
forms for the orange and grapefruit groves were estimated to be STARIMA(0,1,4,1) and STARIMA(0,2,1,2),
respectively.

DE: Oranges--; epidemiology--; models--; Grapefruits--; Techniques--; plant-pathogenic-bacteria; plant-pathology
OD: Xanthomonas-campestris-pv.-citri; Citrus--; bacteria--; Citrus-paradisi
GE: Argentina-
BT: bacteria; prokaryotes; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Rutaceae;
Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Citrus; South-America; America
CC: FF600; ZZ900
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Techniques-and-Methodology
PT: Journal-article
IS: 0031-949X
UD: 951216
AN: 922325398

Record 258 of 298 - CABPESTCD 1989-1999

TI: Asiatic citrus canker detected in a pummelo orchard in Northern Australia.
AU: Broadbent-P; Fahy-PC; Gillings-MR; Bradley-JK; Barnes-D
AD: NSW Agriculture, Biological & Chemical Research Institute, PMB 10, Rydalmere, NT 2116, Australia.
SO: Plant-Disease. 1992, 76: 8, 824-829; 21 ref.
PY: 1992
LA: English
AB: Raised, roughly circular, corky scabs 4-5 mm in diam. and typical of citrus canker were observed on spring
flush leaves, twigs and fruits of pummelos (Citrus grandis [C. maxima]) in a young orchard near Darwin, Northern
Territory, Australia, during a survey conducted in 1991 as part of the Northern Australia Quarantine Strategy. The
causal agent was identified as Xanthomonas campestris pv. citri (Asiatic group, or group A), using pathogenicity in
a series of hosts, fatty acid profiles and DNA fingerprints. The 10 strains from Darwin were compared with 2
previously identified strains of X. c. pv. citri (group A) from a canker outbreak (which has since been eradicated) on
Thursday Island in the Torres Strait. Symptoms on inoculated leaves of sweet orange, West Indian lime, sour
orange, and Duncan grapefruit included lesions of eruptive, callus-like white tissue and were produced by all strains.
Lesions were larger and more erumpent on seedlings or detached leaves of West Indian lime, sweet orange and
Duncan grapefruit. On citrange C-35 (Poncirus trifoliataXC. sinensis) leaves, callus-like lesions were produced by
Thursday Island strains, and small, light tan, necrotic areas were produced by the Darwin strains. The fatty acid
profiles of the Thursday Island strains were similar to a library generated from the fatty acid profiles of the Darwin
strains (with similarity indices of 0.610 and 0.810). All Darwin strains had identical DNA restriction patterns, which
were similar (with a similarity coeff. of 94%) but not identical to those produced from the reference Thursday Island
strains. It is concluded that the canker outbreak near Darwin was caused by X. c. pv. citri (group A). All citrus trees
within the diseased orchard were destroyed and no further outbreaks have been detected.
DE: strains--; Pummelos--; DNA-fingerprinting; detection--; biotechnology--; plant-pathogenic-bacteria;
plant-pathology
OD: Citrus--; Xanthomonas-campestris-pv.-citri; bacteria--; Citrus-maxima
GE: NORTHERN-TERRITORY; Australia-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants;
Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Citrus; Australia; Australasia; Oceania
CC: FF600; WW000; FF020
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Biotechnology; Plant-Breeding-and-Genetics
PT: Journal-article
IS: 0191-2917
UD: 951216
AN: 922322395

Record 259 of 298 - CABPESTCD 1989-1999

TI: Sample outline for a survey of citrus canker in the State of Sao Paulo.
OT: Delineamento amostral para levantamento de cancro citrico no Estado de Sao Paulo.
A sampling method is presented for detecting plant disease and its application to the case of canker in citrus (Xanthomonas campestris pv. citri) in Sao Paulo, Brazil, is detailed. It aims at finding the largest number possible of foci of the disease. In the first stage, producing farms were selected at random, while in the second, the plants were also selected at random within the farms. The proportion of diseased plants in relation to the total number of plants was estimated. For the case of citrus canker, all properties were surveyed and the selection of cultivars was proportional to its susceptibility to the disease. The cost of inspecting each tree increased slightly as the sampling fraction became smaller because more walking to the next tree was involved, but this increase in cost was fully compensated by the increase in the number of trees covered in the survey. It is hoped that this method will reduce costs. It was recommended that all seedling nurseries be inspected; that farms where a focus of the disease is detected be re-inspected in the succeeding years; and that inspections be carried out at the same time of the year when the symptoms are easier to detect.

DE:  Plant-diseases; Citrus-fruits; cankers-; sampling-; disease-control; Techniques-; plant-pathogenic-bacteria; plant-pathology
OD:  Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE:  Brazil-; Sao-Paulo
BT:  bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; South-America; America; Brazil
CC:  EE145; FF600; HH000; ZZ900
CD:  Farm-Input-Utilization; Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Pathogen,-Pest-and-Parasite-Management-General; Techniques-and-Methodology
PT:  Journal-article
UD:  951216
AN:  921897101

Record 260 of 298 - CABPESTCD 1989-1999

TI:  Susceptibility of citrus fruit to bacterial spot and citrus canker.
AU:  Graham-JH; Gottwald-TR; Riley-TD; Bruce-MA
AD:  Research and Education Center, 700 Experiment Station Road, Lake Alfred, FL 33850, USA.
PY:  1992
LA:  English
AB:  A pressurized spray (1 g/mm2) that water-soaked the rind of citrus fruit was used to obtain infection by Xanthomonas campestris pv. citri, X. c. pv. citrumelo and other X. campestris pathovars capable of infecting leaves of the citrus hybrid Swingle citrumelo (Poncirus trifoliata X Citrus paradisi). An aggressive strain of X. c. pv. citrumelo readily infected fruit 20-40 mm in diameter, but fruit of smaller and larger diameters were not as susceptible. Marsh White and Marsh Red grapefruit cultivars developed larger lesions over a wider range of fruit sizes compared with Hamlin and Valencia sweet orange and Orlando tangelo. After 28 days, lesions caused by X. c. pv. citrumelo strains did not expand further into rind tissues. Resistance of fruit to several strains of X. c. pv. citrumelo and other pathovars of X. campestris, both of which produced small, discrete lesions, was confirmed by the inability of these strains to multiply in the rind tissue of Marsh White grapefruit. Nearly all strains of X. c. pv. citrumelo were also incapable of sustaining growth and lesion expansion in leaf tissue of Ruby Red grapefruit and Swingle citrumelo; exceptions were aggressive strains, which produced expanding lesions on Swingle citrumelo. The relationship between fruit size and infection of citrus fruit cultivars by an Asiatic strain of X. c. pv. citri was similar to that for X. c. pv. citrumelo. Red Blush grapefruit was more susceptible to Asiatic citrus canker than Hamlin sweet orange, whereas Capurro mandarin was resistant. Unlike lesions produced by X. c. pv. citrumelo, canker lesions continued to expand up to 106 days after inoculation of fruit 20-40 mm in diameter. Lesions did not expand on fruit >60 mm in diameter.
DE:  susceptibility-; plant-pathogenic-bacteria; plant-pathology
OD:  Citrus-; Xanthomonas-campestris-pv.-citri; Xanthomonas-campestris; bacteria-
An Xanthomonas citri pathogenicity gene, pthA, pleiotropically codes gratuitous avirulence on nonhosts.

The pathogenicity gene, pthA, of X. [campestris pv.] citri is required to elicit symptoms of Asiatic citrus canker disease; introduction of pthA into Xanthomonas strains that are mildly pathogenic or opportunistic on citrus confers the ability to induce cankers on citrus. The structure and the function of pthA in other xanthomonads and in X. c. pv. citri were further investigated. When pthA was introduced into strains of X. c. pv. phaseoli and X. c. pv. malvacearum (neither pathogenic to citrus), the transconjugants remained non-pathogenic to citrus and elicited a hypersensitive response (HR) on their respective hosts, bean (Phaseolus vulgaris) and cotton. In X. c. pv. malvacearum, pthA conferred cultivar-specific avirulence. Structurally, pthA is highly similar to avrBs3 and avrBsP from X. c. pv. vesicatoria and to avrB4, avrB6, avrB7, avrB1n, avrB101 and avrB102 from X. c. pv. malvacearum. Surprisingly, marker-exchanged pthA::Tn5-gusA mutant B21.2 of X. c. pv. citri specifically lost the ability to induce the nonhost HR on bean, but retained the ability to induce the nonhost HR on cotton. The loss of the ability of B21.2 to elicit on bean was restored by introduction of cloned pthA, indicating that the genetics of the nonhost HR may be the same as that found in homologous interactions involving specific avr genes. In contrast with expectations of homologous HR reactions, however, elimination of pthA function (resulting in loss of HR) did not result in water-soaking or even moderate levels of growth in planta of X. c. pv. citri on bean; the nonhost HR, therefore, may not be responsible for the "resistance" of bean to X. c. pv. citri and may not limit the host range of X. c. pv. citri on bean. The pleiotropic avirulence function of pthA and the heterologous HR of bean to X. c. pv. citri are both evidently gratuitous.

Antimicrobial activity of catechins against plant pathogenic bacteria and fungi.

(-)Epicatechin gallate and (-)epigallocatechin gallate were highly inhibitory to Pseudomonas syringae pv. lachrymans, P. solanacearum, Xanthomonas campestris pv. citri and X. campestris pv. vesicatoria. Methylated...
(-)-epigallocatechin gallate was not active against these bacteria but specifically inhibited the growth of Pyricularia oryzae. In inoculation tests crude catechins effectively prevented the development of bacterial leaf spot of tomato caused by X. campestris pv. vesicatoria and citrus canker caused by X. campestris pv. citri, their effectiveness being comparable to that of a wettable copper compound (Doitsu Borudou-A). These results suggest that tea catechins may be useful in the control of some bacterial plant diseases. The control of some bacterial plant diseases.

DE: FLAVANOLS-; control-; plant-pathogens; Tomatoes-; plant-pathogenic-bacteria; plant-pathology
OD: Xanthomonas-campestris-pv.-vesicatoria; Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-; Lycopersicon-esculentum
BT: bacteria; prokaryotes; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Lycopersicon; Solanaceae; Solanales
CC: FF600; HH400; HH000
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Control-by-Chemicals-and-Drugs; Pathogen,-Pest-and-Parasite-Management-General
PT: Journal-article
IS: 0031-9473
UD: 951216
AN: 922319637

Record 263 of 298 - CABPESTCD 1989-1999

TI: Analysis of foci of Asiatic citrus canker in a Florida citrus orchard.
AU: Gottwald-TR; Graham-JH; Egel-DS
AD: USDA-ARS, Orlando, FL 32803, USA.
PY: 1992
LA: English
AB: In Oct. 1990, the occurrence of Asiatic citrus canker in an orange orchard in south Florida was apparently related to spread of Xanthomonas campestris pv. citri from dooryard trees (lemons and citrumelo) 230 m away on an adjacent property. The establishment of the initial foci of disease in the orchard coincided temporally with a major rainstorm with high winds during mid-Aug. 1989, whilst infection of the dooryard trees was related by regulatory officials to an outbreak of X. campestris pv. citri on the west coast of Florida in 1986. Restriction endonuclease digest patterns of DNA taken from the pathogens during the 1986 and 1990 outbreaks were identical. There were 3 extensive and several minor areas of diseased trees in the orchard. The 3 most extensive areas of disease each had trees near the center of the cluster with stem lesions that predated all other foliar lesions in the cluster. From isopath maps of these areas a main focus of diseased trees was found, surrounded by what appeared to be secondary foci. A greater within-row than across-row aggregation for each area was detected by ordinary runs analyses. A predominant direction of disease spread among the areas of diseased trees was not found in analysis of disease gradients. A slightly stronger association of diseased trees within than across rows was found in spatial lag autocorrelation analyses, but noncontiguous groups of diseased trees also occurred that coincided with secondary foci at oblique angles to the oldest diseased trees. If natural spread within the orchard did occur, it may have been confounded by mechanical spread of X. c. pv. citri caused by orchard management practices, such as pesticide applications.

DE: spread-; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-; Florida-; USA-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; South-Atlantic-States-of-USA; Southern-States-of-USA; USA; North-America; America; Gulf-States-of-USA; Southeastern-States-of-USA
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0191-2917
UD: 951216
AN: 922318228

Record 264 of 298 - CABPESTCD 1989-1999
Successful eradication of citrus canker from Thursday Island.

A campaign to eradicate citrus canker from Thursday Island, Queensland, Australia, was initiated in 1984 following the detection of Xanthomonas [campesstri pv.] citri. A total of 10 citrus trees were found with symptoms of the disease over a 2-year period. No symptoms of citrus canker have been observed since Feb. 1986, and the disease was declared eradicated in Sep. 1988.

Evaluation of bactericides for control of citrus canker in Argentina.

The bactericides copper hydroxide, copper ammonium carbonate (CAC), copper oxychloride + kasugamycin, fosetyl-Al, Agrishield and GLC-719 were compared in sweet orange cv. Pineapple nursery plots for control of the Asiatic type citrus canker caused by Xanthomonas campesstri pv. citri (Xcc-A). All products significantly reduced the number of lesions per leaf, but the copper bactericides were the most effective. None of the individual products tested significantly reduced epiphytic populations of Xcc-A below those of the control, but copper bactericides reduced populations more than non-copper materials. In another test on Pineapple sweet orange seedlings, rates of CAC from 0 to 64 ml/litre were compared. Application of CAC at 4 to 8 ml/litre or more to existing foliage reduced the lesion numbers on subsequent growth flushes. Populations of Xcc-A on the new growth flushes were generally reduced when previously existing flushes had been treated, but only if measured soon after treatment. In a field test on mature grapefruit trees, 3 applications per season of CAC or copper hydroxide + maneb reduced lesion numbers on fruit but not on leaves. In this test, lesion numbers were higher on the side of the tree and on those plots exposed to the wind. It is concluded that copper bactericides are still the most effective materials for canker control and have the potential to reduce inoculum as well as reducing infection. This paper was presented at the 101st annual meeting of the Florida State Horticultural Society held in Miami, Florida, USA on 1-3 Nov., 1988.
Citrus canker in Kerman Province.

AU: Alizadeh-A; Rahimian-H
AD: Jihade Sazandegi Education Centre and College of Agriculture, Mazandaran University, Sari, Iran.
PY: 1990
LA: English, Persian
AB: The report of Xanthomonas campestris pv. citri on Mexican lime (Citrus aurantiifolia) in Kahnouj in 1989 is a new record for Iran.
DE: Limes-; plant-pathogenic-bacteria; plant-pathology
OD: Xanthomonas-campestris-pv.-citri; bacteria-; Citrus-
GE: Iran-
BT: bacteria; prokaryotes; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; West-Asia; Asia; Middle-East
CC: FF600

Study of biochemical and physiological variability in Xanthomonas campestris pv. citri, causal agent of bacterial citrus canker.

OT: Etude de la variabilite biochimique et physiologique de Xanthomonas campestris pv. citri, agent du chancre bacterien des agrumes.
AU: Verniere-C; Devaux-M; Pruvost-O; Couteau-A; Luisetti-J
AD: IRFA/CIRAD, Laboratoire de Phytopathologie, BP 180, 97455 Saint Pierre Cedex, Ile de la Reunion.
PY: 1991
LA: French
LS: Spanish
AB: X. c. pv. citri strains (22) belonging to pathovars A, B, C, D (Citrus canker) and E (Citrus bacterial spot (CBS)) were studied for their biochemical and physiological characteristics and their profiles of assimilation of 147 carbohydrate substrates. Mevag medium showed oxidative glucose metabolism significantly better than the commonly used Hugh and Leifson medium. Based on hydrolysis of gelatin and casein and tolerance of NaCl, the strains were divided into 3 groups. A homogeneous assimilation spectrum was observed for 116 carbohydrate substrates. Strains of A and CBS pathotypes were differentiated from B, C and D types based on their assimilation of maltose, amidon and glycogen. Strains of the pathotypes B and D showed similar assimilation profiles. Strains of pathotype C were different from all others by the characters of D-alpha alanine and L-serine.
DE: biochemistry-; physiology-; strains-; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes
CC: FF600
Research relating to the recent outbreak of citrus canker in Florida.

AU: Stall-RE; Civerolo-EL
AD: Department of Plant Pathology, University of Florida, Gainesville, FL 32611, USA.
PY: 1991
LA: English
AB: The research on the recent (since 1982) outbreak of citrus canker in Florida, USA, caused by strains of Xanthomonas campestris pv. citri, is reviewed. Comparisons are made between canker and bacterial spot (X. c. pv. citrumelo) and the serology and classification of Xanthomonas strains from citrus are discussed.
DE: strains-; reviews-; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; Xanthomonas-; bacteria-
GE: Florida-; USA-
ID: Xanthomonas-campestris-pv-citrumelo
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; South-Atlantic-States-of-USA; Southern-States-of-USA; USA; North-America; America; Gulf-States-of-USA; Southeastern-States-of-USA
CC: FF600

Research perspectives on eradication of citrus bacterial diseases in Florida.

AU: Graham-JH; Gottwald-TR
AD: Citrus Research and Education Center, University of Florida, IFAS, 700 Experiment Station Road, Lake Alfred, FL 33850, USA.
PY: 1991
LA: English
AB: The problems of citrus canker caused by Xanthomonas campestris pv. citrumelo and X. c. pv. citri in Florida, USA, are discussed under the headings: methods for detection and identification, comparison of X. c. pv. citrumelo and X. c. pv. citri; epidemiology in nurseries and orchards; susceptibility of foliage and fruit; control measures; and significance of research and the current situation.
DE: plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: Florida-; USA-
ID: Xanthomonas-campestris-pv-citrumelo
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; South-Atlantic-States-of-USA; Southern-States-of-USA; USA; North-America; America; Gulf-States-of-USA; Southeastern-States-of-USA
CC: FF600
AN: 922315215

Record 271 of 298 - CABPESTCD 1989-1999

TI: Analysis of Xanthomonas campestris pv. citri and X. c. citrumelo with monoclonal antibodies.
AU: Alvarez-AM; Benedict-AA; Mizumoto-CY; Pollard-LW; Civerolo-EL
AD: Department of Plant Pathology, University of Hawaii, Honolulu, HI 96822, USA.
PY: 1991
LA: English
AB: A monoclonal antibody (MAb), designated A1, reacted with lipopolysaccharide (LPS) epitopes of all tested strains of X. campestris pv. citri isolated from the Asiatic form of citrus bacterial canker (CVC-A), with X. campestris strains pathogenic on Cordyline terminalis [C. fruticosa], and with some Florida citrus nursery strains associated with citrus bacterial spot (CBS) disease (C. c. pv. citrumelo). The A1 MAb did not react with strains associated with other forms of citrus canker (B, C or D). Except for weak reactions with X. c. pv. manihotis, MAb A1 did not react with 130 other Xanthomonas pathovars and species or with 89 strains of other genera. In contrast, the titres of a rabbit-anti-CBC-A antiserum with several other X. campestris pathovars were as high as titres with some CBC-A strains. A second MAb, A2, reacted only with a flagellar epitope associated with CP1 bacteriophage-sensitive CBC-A strains. The CBC-B strains appeared to be antigenically heterogenous, because no MAb was produced that reacted with all CBC-B strains; however, the CBC-B strains were grouped by reactions to 3 MAbs specific for LPS epitopes. One CBC-B MAb, B2, indicated a close antigenic relationship between strains in groups B, C and D. Another MAb, C1 specific for CBC-C strain XC70 reacted with a heat-sensitive epitope associated with a molecule partially sensitive to proteolytic enzymes. MAbs (T1 and T2) specific for weakly virulent strains isolated in Mexico from Citrus aurantifolia (Mexican lime) did not react with any other strains from citrus. CBS strains from Florida were serologically heterogeneous but distinct from strains associated with CBC. Most of the strongly aggressive CBS strains reacted with a MAb (CBS1) generated to a strongly aggressive strain, whereas most moderately and weakly aggressive strains reacted with MAb Xct generated to a X. campestris pathogen of C. fruticosa. Moderately to weakly aggressive CBS strains reacted with MAb A1, but those strains also reacted with MAb Xct, whereas CBC-A strains did not. The LPS banding patterns of CBC-A strains were similar to each other, with major bands at an av. Mr of 80 000 and were distinguished from the LPS patterns of A1-positive CBS, C. fruticosa and X. c. pv. manihotis strains (major bands at an av. Mr of 60 000).
DE: Biotechnology-; serology-; strains-; Techniques-; differentiation-; Monoclonal-antibodies;
serological-relationships; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
ID: Xanthomonas-campestris-pv-citrumelo
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants;
Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes
CC: FF600; WW000; ZZ900; FF020
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Biotechnology; Techniques-and-Methodology;
Plant-Breeding-and-Genetics
PT: Journal-article
IS: 0031-949X
UD: 951216
AN: 912312462

Record 272 of 298 - CABPESTCD 1989-1999

TI: Effect of bacteriophage, certain antibiotics and fungicides on Xanthomonas campestris pv. citri and citrus canker.
AU: Reddy-CVR; Ramanujam-K; Prasad-NN; Ramabadram-R; Gnanamanickam-SS (ed.); Mahadevar-A
AD: Department of Plant Pathology, Faculty of Agriculture, Annamalai University, Annamalainagar, India.
SO: Advances in research on plant pathogenic bacteria based on the proceedings of the National Symposium on Phytobacteriology held at the University of Madras, Madras, India during March 14-15, 1986. 1988, 133-137; 8 ref.
PB: Today & Tomorrow's Printers & Publishers; New Delhi; India
PY: 1988
LA: English
A bacteriophage causing lysis of Xanthomonas campestris pv. citri was isolated from cankerous leaves of Citrus aurantifolia and the effect of the bacteriophage on infection by the canker bacterium was studied. Although the infection index was slightly less in the case of citrus plants treated with bacteriophage followed by the bacterium, compared with plants treated simultaneously with phage and bacterium and plants inoculated with bacterium alone, the differences were not significant. The effects of various antibiotics are discussed together with the action of fungicides.

DE: Limes-; control-; plant-pathogenic-bacteria; plant-pathology
OD: Xanthomonas-campestris-pv.-citri; bacteriophages-; Citrus-; bacteria-
ID: National-symposium-on-phytobacteriology
BT: bacteria; prokaryotes; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; viruses; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants
CC: FF600; HH000
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Pathogen,-Pest-and-Parasite-Management-General
PT: Conference-paper
IB: 81-7019-305-2
UD: 951216
AN: 912312646

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TI: Effect of C/N ratio on antibiotic production by Aspergillus spp. antagonistic to citrus canker pathogen.
AU: Masroor-MK; Sudhir-Chandra; Chandra-S
AD: Department of Botany, University of Allahabad, Allahabad 211 002, India.
PY: 1989
LA: English
AB: The C/N ratio in the medium affected the production of antibiotics by A. clavatus, A. flavus and A. niger antagonistic to Xanthomonas campestris pv. citri.
DE: production-; antibiotics-; antagonists-; hosts-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Aspergillus-niger; Aspergillus-flavus; Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-; Aspergillus-clavatus
ID: Hyphomycetes; mitosporic-fungi
BT: bacteria; prokaryotes; Aspergillus; Deuteromycota; Eumycota; fungi; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes
CC: FF600; HH100
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Biological-Control
PT: Journal-article
IS: 0250-541X
UD: 951216
AN: 912312584

Record 274 of 298 - CABPESTCD 1989-1999

TI: Effect of amino acids on antibiotic production by Aspergillus spp. antagonistic to citrus canker pathogen.
AU: Masroor-MK; Sudhir-Chandra; Chandra-S
AD: Department of Botany, University of Allahabad, Allahabad 211 002, Uttar Pradesh, India.
PY: 1990
LA: English
AB: Asparagine, followed by glutamine, proline, alanine, glycine, isoleucine, valine, glutamic acid, arginine and peptone, proved to be good sources for antibiotic production in A. clavatus, A. flavus and A. niger, antagonists of Xanthomonas campestris pv. citri.
DE: antagonists-; antagonism-; production-; antibiotics-; Culture-techniques; hosts-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; Aspergillus-flavus; Aspergillus-niger; Aspergillus-; bacteria-; Aspergillus-clavatus
A modified medium for antibiotic production by Aspergillus spp. antagonistic to citrus canker pathogen.

In order to select a medium which could be used to obtain highly active culture filtrate, A. clavatus, A. flavus and A. niger (active against Xanthomonas campestris pv. citri) were grown on modifications of Czapek liquid medium. Czapek liquid medium containing glucose in place of sucrose, potassium nitrate in place of sodium nitrate and L-cystine in place of magnesium sulfate supported good growth and sporulation of the antagonists and favoured antibiotic production.

Among 14 inorganic N compounds tested for their effect on antibiotic production by A. clavatus, A. flavus and A. niger, against Xanthomonas campestris pv. citri, ammonium salts were the most favourable while nitrites failed to support antibiotic production.
Citrus canker. Prevention and control in the State of Parana.
AU: Leite-RP Jr.
AD: Fundacao IAPAR, C.P. 1331, 86001 Londrina, PR, Brazil.
PY: 1990
LA: Portuguese
LS: English
AB: Xanthomonas campestris pv. citri does not survive for long periods in the soil, in association with non-host
plants or in plant debris. Thus, it may be possible to eradicate it locally within a short time. The citrus cultivars
evaluated showed different levels of resistance. Copper-based bactericides and windbreak trees can significantly
reduce the development of the disease. A programme for integrated citrus canker management was developed for
locally eradicating the disease in the State of Parana, Brazil.
DE: integrated-control; disease-control; shelterbelts; fruit-crops; subtropical-fruits; citrus-fruits;
plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: Parana-; Brazil-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants;
Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Brazil; South-America; America
CC: FF600; HH000; KK140
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Pathogen,-Pest-and-Parasite-Management-General;
Protection-Forestry
PT: Miscellaneous
UD: 951216
AN: 912311081

Population dynamics of strains of Xanthomonas campestris differing in aggressiveness on Swingle citrumelo
and grapefruit.
AU: Egel-DS; Graham-JH; Riley-TD
AD: University of Florida, IFAS, Citrus Research and Education Center, 700 Experiment Station Road, Lake
Alfred, FL 33850, USA.
PY: 1991
LA: English
AB: The aggressiveness of strains of X. campestris causing citrus canker (X. c. pv. citri) and citrus bacterial spot
(X. c. pv. citrumelo) on Swingle citrumelo and Duncan grapefruit was assessed by comparing lesion expansion and
population development for these strains in greenhouse, growth chamber, and field experiments, using different
inoculation techniques and sampling methods. When leaves were pinprick inoculated and resultant lesions sampled
over time, there was a positive relationship between populations (detected upon macerating lesions) and external
populations (detected by swabbing the surface of moist lesions) and between each population and lesion diameter
for the different pathovars and aggressiveness types of X. c. pv. citrumelo. Correlations among internal and external
populations and lesion diameter were higher in the field than under dew-forming conditions in the growth chamber.
A leaf-infiltration method revealed few differences in internal populations among pathovars and strains. Strain X
host interactions based on the populations and expansion of lesions were apparent for the different aggressiveness
types of X. c. pv. citrumelo in the field. The highly aggressive strain of X. c. pv. citrumelo on Swingle citrumelo most consistently produced the highest bacterial populations and largest lesions. In the field, internal populations were indicative of external populations and therefore might be predictive of the ability of a strain of X. campestris to spread on a given host.

DE: Citrumelos-; population-dynamics; strains-; Grapefruits-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Xanthomonas-campestris-pv.-citri; Citrus-; bacteria-; Citrus-paradisi
ID: Xanthomonas-campestris-pv-citrumelo; Citrus-paradisi-X-Poncirus-trifoliata
BT: bacteria; prokaryotes; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Citrus
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0031-949X
AN: 912310543

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TI: Bacterial exudation from lesions of Asiatic citrus canker and citrus bacterial spot.
AU: Timmer-LW; Gottwald-TR; Zitko-SE
AD: University of Florida, Institute of Food and Agricultural Sciences (IFAS), Citrus Research and Education Center, Lake Alfred, FL 33850, USA.
PY: 1991
LA: English
AB: When water was added to wells surrounding young lesions of Asiatic citrus canker (caused by Xanthomonas campestris pv. citri) on detached, field-collected leaves of grapefruit, c. 104-105 bacteria/ml were exuded immediately. Bacterial exudation into the water continued at high levels for 24 h, and cumulative release ranged from 105 to 106 per lesion. Fewer bacteria were exuded and bacteria were exuded more slowly from old lesions than from young lesions. Bacterial exudation from lesions of citrus bacterial spot (CBS) produced by X. c. pv. citrumelo on grapefruit and Swingle citrumelo was substantially less than that from Asiatic citrus canker lesions. CBS lesions of the aggressive strain (F1) released more bacteria than those of the moderately aggressive (F6) and weakly aggressive (F100) strains, and exudation declined with all 3 strains as lesions aged. Lesions of Asiatic citrus canker and CBS lesions produced by the 3 strains in a dew chamber at 30°C exuded more than 106 bacteria/ml into water in wells surrounding new lesions. Under these conducive conditions, exudation continued at high levels for 48 h for most strains of the CBS pathogen. The inability of the CBS pathogen to spread under field conditions unless susceptible tissue is abundant, environmental conditions are favourable, and plants have been injured may in part be the result of low inoculum production and rapid decline in bacterial exudation as lesions age.
DE: inoculum-; spread-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
ID: Xanthomonas-campestris-pv-citrumelo
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0191-2917
UD: 951216
AN: 912306161

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TI: Fungal, bacterial and nematological problems of citrus, grape and stone fruits in Arab countries.
AU: Ibrahim-G; Bayaa-B
AD: Botany and Plant Pathology Section, Agricultural Research Corporation, Wad Medani, Sudan.
The distribution and relative economic importance of the diseases and nematodes reported on these crops are discussed. Citrus canker (Xanthomonas campestris pv. citri) is potentially one of the most important diseases. Most common on grapes are powdery mildew (Uncinula necator), downy mildew (Plasmopara viticola) and black rot (Guignardia bidwelli). Facilities and methods of producing healthy seedlings are inadequate in most of these countries.

Variation in aggressiveness of Xanthomonas campestris pv. citrumelo associated with citrus bacterial spot in Florida citrus nurseries.

Reactions on wound-inoculated detached leaves of Swingle citrumelo and Duncan grapefruit were used to characterize strs of X. campestris pv. citrumelo associated with citrus bacterial spot (CBS) in Florida citrus nurseries and to distinguish these strs from X. c. pv. citri, the cause of Asiatic citrus canker. Strs of X. c. pv. citrumelo varied in aggressiveness based on the extent and persistence of water-soaking and the development of necrosis. Aggressiveness on detached leaves was correlated with that on wound-inoculated leaves in the greenhouse and field. Reactions on detached leaves developed rapidly and could be evaluated after 7 d, whereas 30 d were required for the development of lesions on attached leaves. In vitro inoculations distinguished the flat-spreading lesions of CBS from the erumpent, callus-like reaction produced by X. c. pv. citri. In 4 nurseries, the incidence, severity and spatial distribution of CBS was related to str. aggressiveness. Only the most aggressive strs were associated with natural spread, whereas less aggressive strs were evidently spread mechanically by nursery operations. In one nursery, where strs varied from weakly to moderately aggressive, aggressiveness differed among separate disease foci. Strs from 25 unrelated nursery infestations were evaluated and the most aggressive strs occurred in only 4 nurseries. More than 75% of the nursery outbreaks were associated with Swingle citrumelo. This variety was more susceptible than Duncan grapefruit to the aggressive strain of X. c. pv. citrumelo and less susceptible to X. c. pv. citri in attached leaf tests. There were significant interactions of strs of X. c. pv. citrumelo of different aggressiveness with the 2 citrus cultivars.
TI: A preliminary test on the control of citrus canker with monomolecular film-forming substance (MMFS) and other chemicals.
AU: Qiu-CH; Ni-BQ
AD: Cash Crop Station, Jiangle County, Fujian, China.
PY: 1988
LA: Chinese
AB: A test in Fujian, China, in 1986 on the control of citrus canker caused by Xanthomonas [campestris pv.] citri compared MMFS diluted 200, 300 and 500 times with water, and several fungicide treatments. Each chemical was applied at 5 kg/tree on 14 Apr. (early flowering), 20 May (early fruiting) and 15 Jul. (mid-fruiting). All treatments gave good control of the disease on leaves, with >80% control by MMFS diluted 200 and 300 times. MMFS diluted 200 times was also effective in controlling the disease in fruits.
DE: control-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: China-; Fujian-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; East-Asia; Asia; Eastern-China; China
CC: FF600; HH000
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Pathogen,-Pest-and-Parasite-Management-General
PT: Journal-article
UD: 951216
AN: 901146472

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TI: Citrus canker - the role of enzymes and xanthan gum in infection and spread of the pathogen.
AU: Webb-PG; Biggs-RH; Gander-JE
AD: Fruit Crops Department, Fifield Hall, University of Florida, Gainesville, FL 32611, USA.
PY: 1987
LA: English
AB: Xanthomonas campestris pv. citri and X. campestris pv. dieffenbachia remained viable across a wide range of temp. (27-50°F) and pH values (5.0-8.8). Inoculation of Swingle citrumelo (Poncirus trifoliata X Citrus paradisi) and Duncan grapefruit (C. paradisi) plants with X. campestris pv. citri alone and in combination with selected enzymes revealed that the pathogen will not grow in the presence of certain cell-wall hydrolyzing enzymes. Tests with various sugars and acids indicated that butyric acid was most effective in preventing growth of the bacteria. Studies indicated several amendments which enhance or reduce the pathogenic population. Xanthan gum-amended X. campestris pv. citri and X. campestris pv. dieffenbachia inoculations produced rapid long-term growth of the bacteria in citrus. The gums apparently protected the organism from desiccation and UV sunlight and provided aerosol action that encased the microbe for successful dispersal. Spray inoculation trials with Swingle citrumelo indicated that canker lesion formation was enhanced 7-fold with xanthan gum-amended solutions. It is concluded that xanthan gum protected the pathogen and extended the range of environmental conditions which promoted infection. This paper was presented at the 100th annual meeting of the Florida State Horticultural Society, held at Orlando, Florida, USA on 2-5 Nov. 1987.
DE: Grapefruits-; host-parasite-relationships; enzymes-; xanthan-; Citrumelos-; fruit-crops;
Since 1984, epidemiological field experiments on citrus canker and its causal agent X. campestris pv. citri were undertaken at the Experimental Station of the Instituto Biologico in Sao Paulo. Data obtained from Jul. 1985 to Mar. 1987 showed a fast spread of the disease during the summer months (Jan., Feb. and Mar.), favoured by SE and NW winds, at temp. of 22°C and constant, regular rainfall. The infection level during this period increased gradually, and its max. level agreed with the prevalent climate conditions. The max. level may be reached in Feb. or in Mar., depending on the beginning of the rainy season in Sep. or in Dec. Disease intensity was more important at the western and northern sides of the trees which are more exposed to local winds. Disease incidence and severity were very high when the rainy season started in Sep. When a long dry period prevailed from Jun. to Dec., the multiplication of X. campestris pv. citri on leaves and fruits stopped completely, or decreased to a much lower level.
LS: English
AB: Under inoculation with Xanthomonas campestris pv. citri, the intraclass correlation coefficient of healthy leaves was not significant in 15 of 20 samples during 24 months. Under natural infection, the coefficient was significant and positive in 17 of 20 samples during the same period. On the basis of estimates of the intraclass correlation coefficient, it was found sufficient to take one plant from an experimental plot.
DE: sampling-; Techniques-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes
CC: FF600; ZZ900
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Techniques-and-Methodology
PT: Journal-article
IS: 0100-4158
UD: 951216
AN: 901142412

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TI: Susceptibility of Sicilian lemon (Citrus lemon) grafted on different rootstocks to citrus canker caused by Xanthomonas campestris pv. citri.
OT: Susceptibilidade do limao Siciliano (Citrus lemon), enxertado sobre diferentes porta-enxertos, ao cancro citrico causado por Xanthomonas campestris pv. citri.
AU: Leite-RP Jr.; Santos-SD
AD: Instituto Agronomico do Parana, 86100 Londrina, PR, Brazil.
PY: 1988
LA: Portuguese
LS: English
AB: On lemon [C. limon] grafted on Citrus karna, African rough lemon and Rangpur lime [C. limonia], incidence of bacterial canker on leaves and fruits was over 62 and 97%, respectively. On leaves of plants grafted on Poncirus trifoliata incidence was below 9%, while on those grafted on sour orange and Citrus volkameriana it was below 34%. On fruits, incidence was below 64% for plants grafted on P. trifoliata and below 45% for those grafted on sour orange.
DE: Lemons-; rootstocks-; rootstock-scion-relationships; diseases-; Rough-lemons; Sour-oranges; fruit-crops; subtropical-fruits; citrus-fruits; plant-pathogenic-bacteria; plant-pathology
OD: Xanthomonas-campestris-pv.-citri; Citrus-; Citrus-karna; Poncirus-trifoliata; Citrus-volkameriana; Citrus-limonia; bacteria-; Citrus-jambhiri; Citrus-aurantium
BT: bacteria; prokaryotes; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Citrus; Poncirus
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0100-4158
UD: 951216
AN: 901141334

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TI: Occurrence and distribution of citrus canker in Taiwan.
AU: Wu-WC; Tzeng-KC; Lee-MC; Kuo-HF
AD: Graduate Institute of Plant Pathology, National Chung Hsing University, Taichung 40227, Taiwan.
SO: Plant-Protection-Bulletin,-Taiwan. 1989, 31: 2, 139-150; 41 ref.
PY: 1989
LA: Chinese
LS: English
AB: Between 1975 and 1986, 215 strs of Xanthomonas campestris pv. citri were isolated from grapefruit, lemon
and other citrus species, cultivars and hybrids grown in Taiwan. The strs have been preserved and deposited in
Taiwan culture collections.
DE: Grapefruits-; Lemons-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Xanthomonas-campestris-pv.-citri; Citrus-; bacteria-; Citrus-paradisi
GE: Taiwan-
BT: bacteria; prokaryotes; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Rutaceae;
 Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Citrus; South-East-Asia; Asia
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
UD: 951216
AN: 901139788

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TI: Outbreaks and new records. Australia. Eradication of citrus canker from the Torres Strait.
AU: Catley-A
AD: Pl. Quarantine and Inspection Branch, Australian Quarantine and Inspection Serv., Canberra, ACT, Australia.
PY: 1988
LA: English
AB: In 1984 citrus canker (Xanthomonas campestris pv. citri) was detected on Thursday Island in the Torres Strait
in 11 infected trees. These were mainly limes and some sweet oranges. As a precaution all trees within a 15-m
radius were destroyed, a quarantine imposed, and no tree planting allowed for 2 yr. No infection has been observed
for 2 yr which indicates that citrus canker has been eradicated from Torres Strait.
DE: Limes-; Oranges-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Xanthomonas-campestris-pv.-citri; Citrus-; bacteria-
GE: Australia-
BT: bacteria; prokaryotes; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Rutaceae;
 Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Australasia; Oceania
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0254-9727
UD: 951216
AN: 891132770

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AU: El-Goorani-MA
AD: Min. Agric. Fisheries, Ras Al Khimah, United Arab Emirates.
PY: 1989
LA: English
LS: German
AB: Citrus canker disease caused by Xanthomonas campestris pv. citri is reported for the first time in UAE. The
disease was found only on lime in 32 orchards out of 4456 citrus orchards inspected during 1984-85. Results of
pathogenicity tests showed the citrus canker organism in the UAE to have a host range similar to the ‘A’ str. of the
bacterium. Of 5 treatments applied to artificially inoculated lime seedlings, only copper hydroxide significantly
(P<0.05) reduced disease incidence; streptomycin, kasumin, copper oxychloride and Bordeaux mixture were
ineffective.
DE: Limes-; control-; Copper-hydroxide; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Xanthomonas-campestris-pv.-citri; Citrus-; bacteria-
GE: United-Arab-Emirates
RN: 20427-59-2
TI: Population dynamics and survival of Xanthomonas campestris in soil in citrus nurseries in Maryland and Argentina.
AU: Graham-JH; Gottwald-TR; Civerolo-EL; McGuire-RG
AD: Univ. Florida, IFAS, Citrus Res. Education Cent., 700 Experiment Station Rd, Lake Alfred, FL 33850, USA.
PY: 1989
LA: English
AB: The population dynamics and survival in soil of nursery strs of X. campestris causing citrus bacterial spot in Florida (Xc) and strs of X. c. pv. citri causing Asiatic citrus canker (Xcc-A) were evaluated in citrus nurseries under quarantine in Maryland and in Argentina, where citrus canker is endemic. In Maryland, Xc and Xcc-A were recovered from the soil under infected nursery seedlings of Swingle citrumelo when the soil was relatively moist (psi _ -30 cbar) but not when it was drier (psi < -100 cbar). The pathogens were not detected on leaves of adjacent uninfected trees or in the soil under them. The populations of Xc and Xcc-A were generally lower in soil than on leaves with lesions and on symptomless leaves from diseased plants. In Argentina, Xcc-A was detected in a sandy soil in grapefruit and sweet orange nurseries with disease proportions of 0.97 an 0.89, respectively. Fluctuations in soil populations were correlated with rainfall, soil moisture and air temp., as well as leaf populations. After the removal of infested plants to simulate eradication, Xcc-A could not be recovered after 21 d from either nursery site. It appears that Xcc-A and Xc have very limited survival capability in subtropical soils.
DE: survival-; environmental-factors; Soil-; citrus-soils; Soil-types-cultural; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris; Xanthomonas-campestris-pv.-citri; Fungi-; bacteria-
GE: Maryland-; Argentina-; USA-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas; Pseudomonadaceae; Gracilicutes; Xanthomonas-campestris; South-Atlantic-States-of-USA; Southern-States-of-USA; USA; North-America; America; South-America
CC: FF600; FF700; FF900; FF500; HH000; JJ100
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Plant-Disorders-and-Injuries-Not-caused-directly-by-Organisms; Environmental-Tolerance-of-Plants; Weeds-and-Noxious-Plants; Pathogen,-Pest-and-Parasite-Management-General; Soil-Biology
PT: Journal-article
IS: 0191-2917
UD: 951216
AN: 891129442

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TI: Association of citrus canker pustules with leaf miner tunnels in North Yemen.
AU: Cook-AA
AD: Hort. Improvement and Training Subproject, California State Polytech. Univ., CA, USA.
PY: 1988
LA: English
AB: Citrus pustules [caused by Xanthomonas campestris pv. citri] were often observed over and along the entire length of Phyllocnistis citrella tunnels on leaves, but on 1 surface only (usually the lower). P. citrella showed no obvious preference for citrus varieties and many, in addition to the susceptible Mexican lime, were infected. It is
suggested that leaf miners can disseminate and facilitate infection by X. campestris pv. citri.

DE: transmission--; Insect-pests; Plant-diseases; plant-pathogens; vectors--; Limes--; fruit-crops; fruits--; plant-pathogenic-bacteria; plant-pathology; agricultural-entomology

OD: Citrus--; Xanthomonas-campestris-pv.--citri; Phyllocnistis-citrella; Phyllocnistidae--; Lepidoptera--; bacteria--; arthropods--

GE: Yemen--
ID: Xanthomonas-citri

BT: arthropod-pests; pests; animals; arthropods; invertebrates; insects; bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Phyllocnistis; Phyllocnistidae; Lepidoptera; West-Asia; Asia; Middle-East; Gram-negative-bacteria

CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0191-2917
UD: 951216
AN: 891126203

Record 292 of 298 - CABPESTCD 1989-1999

TI: Asiatic citrus canker: spatial and temporal spread in simulated new planting situations in Argentina.
AU: Gottwald-TR; McGuire-RG; Garran-S
AD: ARS, USDA, Orlando, FL 32803, USA.
SO: Phytopathology. 1988, 78: 6, 739-745; 27 ref.
PY: 1988
LA: English
AB: Single replant trees, one each of cultivars Marsh grapefruit and Valencia orange, were inoculated with a rifampicin-resistant str. of Xanthomonas campestris pv. citri. These inoculated trees were planted in the centre of 2 plots each consisting of 187 trees (c. 1.0 m tall) of the corresponding cultivar. Spread of epiphytic bacteria from the focal trees was monitored by immunofluorescence microscopy, and incidence of diseased trees was recorded. Disease was first detected 49 d after diseased trees were placed in the field. Initial disease spread was highly directional and associated with high winds and blowing rain in mid-Jan. Subsequent spread was less rapid and generally nondirectional. Monomolecular, logistic and Gompertz models were tested for goodness-of-fit to disease progress data, the Gompertz model was superior. The rate of disease increase (Gompertz rate parameter, k) was 0.005 and 0.009/d for orange and grapefruit plots, respectively. Disease gradients of \(-\ln(-\ln(y))=a-b\log_{10}m\), where \(y=\) disease severity (\%) and \(m=\) distance from the disease focus of infection in meters, varied over time from -0.713 to -1.237 and from +0.048 to -1.856 for orange and grapefruit plots, respectively. Disease gradients steepened over time as a result of disease-induced defoliation that often exceeded 90% on individual trees.

DE: Oranges--; spread--; Grapefruits--; Techniques--; models--; fruit-crops--; plant-pathogenic-bacteria--; plant-pathology
OD: Xanthomonas-campestris-pv.--citri; Citrus--; bacteria--; Citrus-paradisi
GE: Argentina--

BT: bacteria; prokaryotes; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Citrus; South-America; America
CC: FF600; ZZ900
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Techniques-and-Methodology
PT: Journal-article
IS: 0031-949X
UD: 951216
AN: 891122837

Record 293 of 298 - CABPESTCD 1989-1999

TI: Studies on the resistance of citrus varieties to citrus canker at the President Prudente Experimental Station, SP.
OT: Estudos sobre a resistencia de variedades citricas ao cancro citrico, na Estacao Experimental de Presidente Prudente - SP.
AU: Nogueira-EM-de-C; Palazzo-DA; Ceravolo-LC; Carvalho-MLV
AD: Inst. Biol., Sao Paulo, Brazil.
A brief account is given of inoculation trials with Xanthomonas campestris pv. citri to screen citrus germplasm since 1982.

DE: varietal-reactions; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: Brazil-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; South-America; America
CC: FF600; FF020; HH600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Plant-Breeding-and-Genetics; Host-Resistance-and-Immunity
PT: Journal-article
IS: 0102-1907
UD: 951216
AN: 891118892

Record 294 of 298 - CABPESTCD 1989-1999

Epidemiological studies on citrus canker (Xanthomonas campestris pv. citri): progress of the disease in time.

AU: Palazzo-DA; Nogueira-EM-de-C; Ceravolo-LC; Montovanello-CM
AD: Inst. Biol., Sao Paulo, Brazil.
SO: Laranja. 1987, 1: 133-140; 7 ref.
PY: 1987
LA: Portuguese
LS: English
AB: In 1985-86, citrus canker spread rapidly in summer, favoured by SE and NW winds, temp. of 25°C or more and rain.
DE: epidemiology-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: Brazil-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; South-America; America
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0102-1907
UD: 951216
AN: 891118891

Record 295 of 298 - CABPESTCD 1989-1999

Studies on the survival of the bacterium causing citrus canker.

AU: Malavolta-VA Jr.; Rodrigues-Neto-J; Carvalho-MLV
AD: Inst. Biol., Sao Paulo, Brazil.
PY: 1987
LA: Portuguese
LS: English
AB: Studies on survival of Xanthomonas campestris pv. citri in soil, non-host plants and citrus sap are discussed.
DE: survival-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
Use of serological tests to detect citrus canker.

Using ELISA and monoclonal antibodies produced in vitro, a purified antigen having exopolysaccharides in its structure was obtained from the capsule of Xanthomonas campestris pv. citri. The specificity of antisera obtained with these antigens was determined.

Citrus canker [Xanthomonas campestris pv. citri] is still present in Sao Paulo 30 yr after it first appeared, although eradication programmes have had some effect. The presence of the disease in adjoining States and neighbouring countries makes the problem difficult.
Record 298 of 298 - CABPESTCD 1989-1999

TI: The history and rediscovery of citrus canker in Florida.
AU: Whiteside-JO
AD: Citrus Res. Exp. Sta., Lake Alfred, FL, USA.
SO: Citrograph. 1988, 73: 10, 197-206; 15 ref.
PY: 1988
LA: English
AB: Key features of the disease caused by Xanthomonas campestris pv. citri, its occurrence in Florida, its recent discovery along the Gulf Coast and its occurrence in Argentina, (where the disease has been present for 25 yr and which has similar environmental conditions to those in Florida) are discussed. Prospects for eradication of the disease are considered.
DE: fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: Florida-; USA-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; South-Atlantic-States-of-USA; Southern-States-of-USA; USA; North-America; America; Gulf-States-of-USA; Southeastern-States-of-USA
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0009-7578
UD: 951216
AN: 891118427

No. Records Request
1 29713 citrus
2 5350 canker
* 3 300 citrus canker
4 190410 biological
5 528338 control
6 10 #3 and biological control

Record 1 of 2 - CABPESTCD 1989-1999

TI: Analysis of disease progress of citrus canker in nurseries in Argentina.
AU: Gottwald-TR; Timmer-LW; McGuire-RG
AD: USDA, ARS, Horticultural Research Laboratory, Orlando, FL 32803, USA.
PY: 1989
LA: English
AB: Three nursery plots of Duncan grapefruit, Pineapple sweet orange and Swingle citrumelo rootstock were established in Concordia, Entre Rios, Argentina, to study the temporal increase and spatial spread of citrus bacterial canker from a single focal point. Focal trees of each cultivar were inoculated with Xanthomonas campestris pv. citri and planted in the centre of each plot. Disease increase over time was measured as either disease severity (proportion of leaves infected/plant) or disease incidence (proportion of plants infected). Exponential, monomolecular, logistic, Gompertz and Weibull models were tested for appropriateness by non-linear regression analysis. The Gompertz model was superior for describing increase in disease incidence and disease severity in all 3 citrus nurseries. The rate of disease increase was greater in the most susceptible host, Duncan grapefruit, than in less susceptible hosts. Disease spread coincided with rain splash dispersal and a rapid increase in the apparent infection rate after windblown rainstorms. Rate of disease spread was independent of wind direction. Aggregation of diseased plants was observed in all 3 nurseries throughout the duration of the tests. Aggregation of individuals appeared to be equivalent between and across rows, indicating that splash dispersal of inoculum was not impeded by between-row
distances. Secondary foci were established early in the epidemics and soon overcame the effect of the original focus of disease. The slope of linearized disease gradients, \((-\ln(-\ln(y)) = a + b \ln(x))\), where \(y\) = disease incidence and \(x\) = distance from the focus of infection in meters, fluctuated over time because of disease-induced defoliation of severely infected plants. Defoliation of more severely diseased plants near the focus subsequently resulted in positive disease gradient slopes for the susceptible Duncan grapefruit nursery as disease levels near the focus diminished.

DE: models-; epidemiology-; techniques-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
GE: Argentina-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes; South-America; America
CC: FF600; ZZ900
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants; Techniques-and-Methodology
PT: Journal-article
IS: 0031-949X
UD: 951216
AN: 901176091

Record 2 of 2 - CABPESTCD 1989-1999

TI: Isozyme analysis of Xanthomonas campestris pv. citri.
AU: Kubicek-QB; Civerolo-EL; Bonde-MR; Hartung-JS; Peterson-GL
AD: ARS, USDA, Beltsville, MD 20705, USA.
PY: 1989
LA: English
AB: Isoenzyme analysis of 14 putative isoenzymic loci by horizontal starch gel electrophoresis was conducted on 36 strs of X. campestris pv. citri representing 4 pathogenic variants associated with different forms of citrus bacterial canker disease in 8 countries. An additional 80 strs of X. campestris associated with citrus bacterial spot disease, primarily in Florida citrus nurseries, were also analysed. Four enzymes were monomorphic in all 116 strs. The number of isomorphs for the 10 remaining polymorphic loci ranged from 2 to 5. Generally, all strs of X. c. pv. citri were isoenzymically similar, but not identical in all cases, to the neopathotype str. No isoenzymes were found in the citrus canker groups of strs that distinguished any of the forms of citrus canker. As a subgroup, the Asiatic citrus canker strs exhibited relatively little isoenzymic polymorphism despite their varied origins worldwide. In contrast, several isoenzymic alleles were present only in the set of citrus bacterial spot strs isolated from Florida citrus nurseries. These strains also exhibited extensive isoenzymic polymorphism. It is concluded that isoenzyme analysis may be a useful technique in epidemiological studies of phytopathogenic bacteria.
DE: isoenzymes-; fruit-crops; plant-pathogenic-bacteria; plant-pathology
OD: Citrus-; Xanthomonas-campestris-pv.-citri; bacteria-
BT: bacteria; prokaryotes; Rutaceae; Sapindales; dicotyledons; angiosperms; Spermatophyta; plants; Xanthomonas-campestris; Xanthomonas; Pseudomonadaceae; Gracilicutes
CC: FF600
CD: Pests,-Pathogens-and-Biogenic-Diseases-of-Plants
PT: Journal-article
IS: 0031-949X
UD: 951216
AN: 891128022