

Research Article

Prevalence, Diagnosis and Management of Core Rot in Apple Fruits

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Abstract

Core rot of apple fruits has been appearing in moderate to severe form leading to excessive pre-harvest fruit drop and post harvest fruit rot during storage in Himachal Pradesh. Surveys of apple orchards for four consecutive yrs (2006-09) in districts of Kullu, Mandi, Shimla and Kinnaur revealed disease incidence varying from 1.5-16.5, 2.7-19.5, 1.4-15.2 and 0.2-6.2%, respectively. Fruit rot incidence under storage conditions ranged between 2.9-9.5% during 2008-09. Amongst the different pathogens identified, *Alternaria mali* (Syn. *A. alternata*) occurred in the highest frequencies (54.0-81.5%) followed by *Trichothecium roseum* (14.5-37.50%). *Fusarium* (0.1-5.8%) and *Penicillium* (0.2-2.6.0%) species occurred in low frequencies. *In vitro* evaluation of 14 fungicides indicated that difenoconazole and propiconazole (200 µl L⁻¹) were effective against major pathogens viz. *A. mali* (98.8, 90.4%), *T. roseum* (81.6, 83.0 %,) and *Fusarium tricinctum* (69.4, 61.5%). Tebuconazole (200µl l⁻¹), carbendazim + iprodione (300 µl L⁻¹), propineb, mancozeb, and metiram at 1250 µl L⁻¹ and dodine (300 µl L⁻¹) were the next best in order of merit. Field evaluation of *in vitro* screened fungicides including Companion (carbendazim + mancozeb) for two consecutive yrs revealed that three consecutive sprays with difenoconazole (0.015%) at three phenological stages viz., pink bud, and petal fall – pea fruit size stage and marble – walnut fruit size stage, respectively, provided maximum disease control (90.2%). Evaluation of 14 fungicide spray schedules indicated that a schedule comprising of three sprays starting with propineb (0.3%) at pink bud stage followed by another two sprays with difenoconazole (0.015%) and dodine (0.075%) at petal fall– pea stage and marble - walnut stage, respectively, was highly effective (91.8%) and economical (CBR=1:9.2).

Key words: Apple, *Alternaria mali*, *A. alternata*, *Botrytis cinerea*, core rot, fungicides, *Fusarium* spp., *Trichothecium roseum*

Citation: Sharma IM, Negi HS and Kholsa K. 2013. Prevalence, diagnosis and management of core rot in apple fruits. *J Mycol Pl Pathol* 43(3): 261-270.

Research Article

Prevalence, Yield Loss Assessment and Status of Alternaria Leaf Blight of Cotton in Western Maharashtra

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Abstract

A Six years study (2004-2009) on the occurrence, prevalence and intensity of foliar diseases of cotton at Rahuri revealed that *Alternaria* leaf blight caused by *Alternaria macrospora* was most predominant (26.52 PDI), followed by *Myrothecium* leaf blight caused by *Myrothecium roridum* (12.22 PDI) and bacterial blight caused by *Xanthomonas axonopodis* pv. *malvacearum* (20.40 PDI) in western Maharashtra. The first appearance of diseases and their highest intensity varied in different years, probably due to changing weather variables (high relative humidity and rainfall). A three-year study on seed cotton yield loss due to *Alternaria* blight in cv. LRA-5166 and its effective control revealed that a disease severity of 25.47 (PDI) resulted in the cotton seed yield loss of 13.70%, and the disease could be effectively controlled by spraying the fungicide propiconazole (0.1%) at 15-d-intervals at 80 and 95 DAS.

Key words: *Alternaria* leaf blight, cotton, fungicide, yield loss

Citation: Perane RR, Pawar NB and Bharud RW. 2013. Prevalence, yield loss assessment and status of *Alternaria* leaf blight of cotton in western Maharashtra. *J Mycol Pl Pathol* 43(3): 271-274.

Research Article

Prevalence and Distribution of *Fusarium* Leaf spot of *Plumbago zeylanica* caused by *Fusarium chlamydosporum* in Bhadra Wildlife Sanctuary in Karnataka

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Abstract

Plumbago zeylanica, commonly known as 'Chitrika', is an important endangered medicinal herb used extensively in ethnomedicine. Studies were conducted to determine the causal agent of a foliar disease affecting *P. zeylanica* plants in Bhadra Wildlife sanctuary during 2006-2009. The incidence and severity of foliar fungal disease in forest regions as well as the distribution pattern of disease in the sanctuary was determined. Diseased foliage samples were analyzed for certain secondary metabolites. The causal agent of the foliar disease was identified as *Fusarium chlamydosporum* in the samples collected from Lakkavalli, Kemmannugundi and Kakanahosudi state forests of the sanctuary. The incidence and severity of the disease was high in Lakkavalli forest during the December-March period. The pathogen was evenly distributed in all the three forest regions. Analysis of the diseased foliage samples indicated the presence of alkaloids, such as flavonoids and phenols which increased with increase in infection due to *F. chlamydosporum*, while the levels of steroids decreased. The study also revealed that the leaf spot became severe during winter months which altered the secondary metabolite content in infected foliage.

Key words: *Fusarium chlamydosporum*, fungicides, *Plumbago zeylanica*, secondary metabolites

Citation: Parashurama TR, Vasanthakumari MM and Shivanna MB. 2013. Prevalence and Distribution of *Fusarium* Leaf spot of *Plumbago zeylanica* caused by *Fusarium chlamydosporum* in Bhadra Wildlife Sanctuary in Karnataka. *J Mycol Pl Pathol* 43(3): 275-281.

Research Article**Prevalence and Severity of Anthracnose of Yam (*Dioscorea alata* and *D. bulbifera*) caused by *Colletotrichum gloeosporioides* in Bhadra Wildlife Sanctuary in Karnataka****KGS Achar¹, MM Vasanthakumari¹, P Mahishi² GE Mallikarjunaswamy¹ and MB Shivanna¹**

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Abstract

Dioscorea species are known for their pharmaceutical and nutritional values. Two species of *Dioscorea* – *Dioscorea alata* and *D. bulbifera* were studied for occurrence and prevalence of anthracnose disease caused by *Colletotrichum gloeosporioides* in 12 state forest regions of Bhadra wildlife sanctuary situated in the South central part of the western Ghats region in Karnataka, India during August 2006-July 2009. Data of disease incidence for three years was subjected to heterogeneity test. The healthy and infected foliages were analysed for the variation in secondary metabolites. The study revealed high anthracnose incidence and severity in Muthodi during winter (October-January) in both *Dioscorea* species. The low incidence and severity was recorded in Kemmannugundi for *D. alata* and Kakanahasudi for *D. bulbifera*. Power law estimation revealed that there was a regular pattern of distribution ($P \leq 0.001$) of disease incidence in *D. alata* and a heterogeneous type of distribution ($P \leq 0.001$) in *D. bulbifera*. Secondary metabolite analysis revealed that alkaloid and steroid contents decreased following anthracnose infection, whereas flavonoids and phenols contents increased in both species.

Key words: Anthracnose, *Colletotrichum gloeosporioides*, *Dioscorea alata*, *Dioscorea bulbifera*, spatial pattern; secondary metabolites, Western Ghats

Citation: Achar KGS, Vasanthakumari MM, Parinitha M, Mallikarjunaswamy GE and Shivanna MB. 2013. Prevalence and severity of anthracnose of yam (*Dioscorea alata* and *D. bulbifera*) caused by *Colletotrichum gloeosporioides* in Bhadra Wildlife Sanctuary in Karnataka. *J Mycol Pl Pathol* 43(3): 282-290.

Research Article

Prevalence, Yield Loss and Epidemiology of Phyllody in Sesame in Gujarat in Relation to its Vector, Leaf hopper (*Orosius albicinctus* Dist)

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Abstract

Phyllody in sesame (*Sesamum indicum*) crop was widespread in Gujarat, especially in Saurashtra region in both summer and kharif seasons. The prevalence of disease varied between the seasons and locations. Its incidence was higher (4.7%) in summer as compared to kharif (1.5%) 2009. The spread of disease was very slow, the disease was first observed at 40 days after sowing (DAS) and reached to maximum severity at 75 DAS. The plant height, number of branches, number of capsules, seed yield and seed test weight were considerably reduced when infection occurred at 50 and 55 DAS as compared to 65 DAS. Incidence of phyllody was positively correlated with the population of its leaf hopper vector (*Orosius albicinctus*). Linear correlation of leaf hopper population with weather factors (kharif and summer 2008 and 2009) indicated that the *O. albicinctus* population is influenced by both temperature and humidity. Overlapping cultivation of summer and kharif crops seems to be mainly responsible for increased incidence and severity of this disease. In a field experiment to evaluate insecticides, the percentage of phyllody was lower in methyl-o-demeton treated plants (1.2 and 1.6%) than in the control (2.6 and 2.9%) during kharif and summer, respectively, and also increased seed yield (380 and 330 kg ha⁻¹) compared to check (210 and 180 kg ha⁻¹).

Key words: Leaf hopper, *Orosius albicinctus*, phyllody, Saurashtra, *Sesamum indicum*, vector population

Citation: Pathak DM, Parakhia AM and Akbari LF. 2013. Prevalence, yield loss and epidemiology of phyllody in sesame in Gujarat in relation to its vector, leaf hopper (*Orosius albicinctus* Dist). *J Mycol Plant Pathol* 43(3): 291-296.

Research Article**Evaluation of Fungicides, Neem Bio-formulations and Biocontrol agent for the Management of Root Rot of Safed Musli caused by *Rhizoctonia solani*****Pokhar Rawal¹, Pinki Sharma¹, Natwar Singh Dodiya² and Arunabh Joshi³**

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Abstract

Root rot disease of safed musli (*Chlorophytum borivillianum*) caused by *Rhizoctonia solani* is an economically important disease in many parts of Madhya Pradesh, Gujarat and Rajasthan states of India. *In vitro* and field experiments were conducted to evaluate the effects of different systemic and non-systemic fungicides, neem-based formulations, organic cakes and a biocontrol agent *Trichoderma viride* either alone or in various combinations for the management of root rot disease of safed musli during three crop seasons (2010-2013). *In vitro* fungitoxicity test indicated that the fungicides mancozeb 63% + carbendazim 12% (SAAF-75WP), carbendazim 50WP, propiconazole 25EC and hexaconazole 5EC were highly effective and resulted in complete mycelial growth inhibition of *R. solani* at 0.05, 0.1 and 0.2% concentrations. However, among the five neem-based formulations and six oil cakes extracts, neem oil, neem formulation no 2 at 3% and neem, jatropha cakes extract at 40 % were highly inhibitory to *R. solani*. *Trichoderma viride* (ICRISAT strain) and Sanjivani showed high efficacy in suppressing *R. solani*, whereas a local and ICRISAT strains showed growth inhibition (30.7 and 19.2, respectively) by the production of volatile antibiotics. In field evaluation of 14 treatments, a treatment combination consisting of soil amended with neem cake manure @ 500g m⁻² + seed treatment with mancozeb 63% + carbendazim 12% (SAAF) @ 0.2% + seed dip treatment with *T. viride* talc-based formulation @ 20% resulted in the highest seed germination (86.14%), minimum root rot (8.9%) and maximum fasciculated root yield (2.2 kg plot⁻¹) of safed musli compared to inoculated untreated control. Determination of population density revealed that disease suppression was due to reduction in population density of *R. solani* in all the treatments compared to the untreated control. The integrated treatment also improved root quality parameters.

Key words: Biocontrol agents, fungicide, Neem-based formulations, *Rhizoctonia solani*, safed musli

Citation: Rawal P, Sharma Pinki, Dodiya NS and Joshi A. 2013. Evaluation of Fungicides, Neem bioformulations and Biocontrol agent for the Management of Root Rot of Safed Musli caused by *Rhizoctonia solani*. *J Mycol Pl Pathol* 43(3): 297-305.

Research Article**Effect of Selective Mycoflora Amended Vermicompost on Suppression of Root Rot Pathogens of Tomato**Vibha¹, PK Jha¹ and Nidhi²¹Department of Plant Pathology, ²Department of Maths, Stats and Computer Application, Rajendra Agricultural University, Pusa (Samastipur) 848 125, Bihar, India. Email: vibhapandey93@gmail.com**Abstract**

Ten decomposition promoting fungal isolates from rhizosphere of different plants were evaluated in various combinations to determine their effect on the biological productivity of earthworms and subsequent suppression of tomato diseases by the vermicast. Earthworm population, weight and size, and vermicast recovery were higher in fungal-amended vermicompost over the unamended control. Aqueous extracts of various combinations of fungal-amended vermicompost inhibited as well as promoted the growth of *Pythium aphanidermatum* (causing damping off disease of tomato), whereas similar combinations had inhibitory effect on mycelial growth of *Fusarium oxysporum* (causing root rot disease of tomato). Mycelial growth of *Trichoderma virens* was inhibited by fungal-amended vermicompost while mixed response was recorded in case of *Paecilomyces lilacinus*. Vermicompost prepared from fungal combinations of *Aspergillus niger* + *Trichoderma virens* + *Paecilomyces lilacinus* + *Humicola grisea* stimulated almost all the biological parameters of the plant and was highly suppressive towards pre-emergence disease incidence and also towards total disease severity. Fungal combinations of *A. niger* + *T. virens* + *P. lilacinus* + *H. grisea* + *Cladosporium cladosporioides* + *Penicillium purpurogenum* used in vermicompost preparation was superior to other combinations in reducing the post emergence disease incidence.

Key words: Agriwaste, disease suppression, mycofloral activation, pre-decomposition, vermicompost

Citation: Vibha, Jha PK and Nidhi. 2013. Effect of selective mycoflora amended vermicompost on suppression of root rot pathogens of tomato. *J Mycol Pl Pathol* 43 (3): 306-313.

Research Article

Management of Fungal Root Disease Complex and Powdery Mildew in Organic Farming of FenugreekAmit Trivedi¹, T Hussain², SK Sharma³ and Sandeep Sharma³¹Department of Plant Pathology, ²Department of Entomology, Rajasthan College of Agriculture, ³Directorate of Research, MPUAT, Udaipur 313001, Rajasthan, India. E-mail: amit2_trivedi@yahoo.co.in**Abstract**

Fenugreek (*Trigonella foenum-graecum*), an important spice crop in India suffers from several diseases of which root disease complex comprising of wilt (*Fusarium oxysporium*), dry root rot (*Rhizoctonia solani*), and powdery mildew (*Erysiphe polygoni*) are of economic importance. Field experiments were conducted during Rabi (post rainy season) of 2009 to 2012 to develop a suitable organic module to manage these diseases and improve productivity of fenugreek. The treatments included soil application of neem cake @ 2 q ha⁻¹ + seed treatment with *Trichoderma viride* (8g kg⁻¹ seed) to manage the root disease complex – wilt and dry root rot, and foliar spray with bio-dynamic silicon BD-501, *Ampelomyces quisqualis* or vegetable oils to manage powdery mildew. The module consisting of soil application of neem cake + seed treatment with *T. Viride* + four sprays of BD 501 or *A. quisqualis* significantly reduced the incidence of root diseases and powdery mildew, and increased the yield attributes and yield of Fenugreek. Wilt incidence in various treatments ranged between 1.7 and 1.9% compared to 4.4% in untreated control. Four sprays of BD- 501 (1g 13L⁻¹) proved highly effective for the management of powdery mildew. The lowest powdery mildew (PDI 16.6) and maximum seed yield (16.6 q ha⁻¹) was recorded with the application BD-501 followed by *A. quisqualis* (PDI 17.3 and seed yield 15.9 q ha⁻¹), compared to control (PDI 68.6 and seed yield 12.0 qha⁻¹). The IDM module resulted in 1.5 times higher B: C ratio over the untreated control.

Key words: *Ampelomyces quisqualis*, BD 501, fenugreek, organic farming, powdery mildew, root disease complex

Citation: Trivedi Amit, Hussain T, Sharma S K, and Sharma Sandeep. 2013. Management of fungal root disease complex and powdery mildew in organic farming of fenugreek. *J Mycol Pl Pathol* 43(3): 314-318.

Research Article

Bioefficacy of Aqueous- and Cow Urine based Bioformulations against Grey Mold of Strawberry

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Abstract

Botrytis fruit rot or gray mould caused by *Botrytis cinerea* is an important disease of strawberry resulting in huge losses in fruit yield. Chemical fungicide applications result in toxic residues on the fruits and also in developing resistance to fungicides in the pathogen. In this study, six botanicals (leaves of *Bougainvillea glabra*, *Ocimum sanctum*, *Cryptolepis buchanani*, *Artemisia roxburghiana*, *Roylea elegans* and mature seeds of *Melia azedarach*) and their two bio formulations (BF), water-based (BF-I) and cow urine based (BF-II) were evaluated against grey mould disease. In *in vitro* studies, BF-II was found more effective with mycelia growth inhibition of 95.4% than BF-I with mycelia growth inhibition of 82.0%. In the field evaluation, the six botanicals, their two bioformulations and three fungicides were evaluated for the control of gray mold. Of these BF-II and heaxaconazole were found more effective in reducing the disease and increasing the fruit yields. BF-II resulted in 85.9% reduction in the incidence of grey mould and 81.4% increase in yield compared to untreated control.

Key words: Botanicals, *Botrytis cineria*, grey mould, fungicides, strawberry

Citation: Raj H and Sharma RL. 2013. Bioefficacy of aqueous- and cow urine based bioformulations against grey mold of strawberry. *J Mycol Pl Pathol* 43(3): 319-322.

Research Article

Molecular Characterization of *Xanthomonas axonopodis* pv. *punicae* causing Bacterial Blight of Pomegranate

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Abstract

Bacterial blight caused by *Xanthomonas axonopodis* pv. *punicae* is a major disease in pomegranate (*Punica granatum*) cultivation in India threatening the export potential of this fruit. The present investigation describes characterization of 17 isolates of *X. axonopodis* pv. *punicae* (*Xap*) at molecular level using random decamer primers. The primers OPA-03, OPA-09, OPI-13, OPG-07 and OPX-11 were found to be most significant and polymorphic. Percent polymorphism was 96.87 and the average number of polymorphic bands per primer was 11.87. The dendrogram analysis based on RAPD fingerprint data revealed five major groups among the 17 isolates of this pathogen. The isolate XapNRCP1 was found more distant to all isoaltes, while XapNS and XapSAAJ were found 91% similar to each other. Genetic distance among all strains ranged between 9 and 42%.

Key words: Bacterial blight, genetic diversity, pomegranate, *Xanthomonas axonopodis* pv. *punicae*

Citation: Shinde SB, Kale SP, Chavan RL, Hinge VR and Patil HB. 2013. Molecular characterization of *Xanthomonas axonopodis* pv. *punicae* causing bacterial blight of Pomegranate. *J Mycol Plant Pathol* 43(3): 323-327.

Research Article**Pathogenic Variability in Apple Blotch Pathogen *Marssonina coronaria*****Anil Kumar¹ and JN Sharma²**

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Abstract

Apple blotch caused by *Marssonina coronaria* has become a serious disease in several parts of Himachal Pradesh and elsewhere in India. Pathogenic variability in nine isolates of *M. coronaria* collected from different geographical regions of Himachal Pradesh was studied by inoculating one-year-old grafted plants in a polyhouse. The isolates of *M. coronaria* produced different levels of disease severity and conidial production in the blotch lesion. Isolates from three hot spots - Gumma, Jubbal and Pujarli produced significantly greater disease severity than other isolates. Gumma isolate exhibited maximum (47.6%) disease severity and conidial production (27.09×10^4 conidia ml⁻¹) at 9×10^4 conidia ml⁻¹ inoculum density whereas, Dhali isolate exhibited maximum 32.7% disease severity and 9.31×10^4 conidia ml⁻¹ conidial production at the same inoculum density, respectively. The results clearly indicated pathogenic variation among these isolates.

Key words: Apple blotch, *Marssonina coronaria*, pathogenic variability

Citation: Kumar A and Sharma JN. 2013. Pathogenic variability in apple blotch pathogen *Marssonina coronaria*. *J Mycol Pl Pathol* 43(3): 328-332.

Research Article

Management of Fusarium Wilt of Lentil through Fungicides

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Abstract

Wilt of lentil caused by *Fusarium oxysporum* f.sp. *lentis* is a serious threat to cultivation of lentil crop in India. Eight systemic and nonsystemic fungicides were tested at different concentrations (50, 100, 200, 400 $\mu\text{g L}^{-1}$) *in vitro* and *in vivo* for the management of wilt disease of lentil. At 400 $\mu\text{g L}^{-1}$, benlate and captaf both inhibited the fungus growth completely while carbendazim resulted in minimum growth followed by thiram. Based on effectiveness of fungicides *in vitro*, some of the fungicides were tested under field conditions. Reduction in disease incidence (76.9%) and increase in grain yield (57.8%) was recorded in benlate treated plots followed by captaf. Benlate treated plots also revealed the lowest disease incidence (1.0%), highest grain yield (608.7 kg ha^{-1}) as well as maximum 1000-grain weight (15.1g) followed by captaf.

Key word: *Fusarium oxysporum* f.sp. *lentis*, fungicides, lentil wilt

Citation: Garkoti A, Kumar S and Tripathi HS. 2013. Management of Fusarium wilt of lentil through fungicides. *J Mycol Pl Pathol* 43(3): 333-335.

Research Article**Effect of Inoculation Methods and Plant Age on Seedling Blight of Castor caused by *Alternaria ricini* and its Management with Fungicides****Ranjana Das, A Borgohain and K Das**

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Abstract

Seedling blight of castor (*Ricinus communis*) caused by *Alternaria ricini* is an important disease affecting both seed and foliage yield. Castor leaves, the primary food for Eri silkworm (*Philosamia riccini*), are damaged heavily at seedling stage by *A. ricini* reducing the foliage yield considerably in North eastern region of India. This study was undertaken to determine the most susceptible stage of the crop and effective fungicidal management of this disease. Castor plants of varying ages (11, 18 and 25 day-old) were inoculated with *A. ricini* (1×10^4 spores ml⁻¹) using two methods (spray and smear). In all inoculation methods, plants inoculated at 11 and 18 DAE (days after emergence) revealed significantly higher severity, over those inoculated at 25 DAE as well as the uninoculated control. In *in vitro* test, among the systemic fungicides the triazoles like penconazole, propiconazole and hexaconazole were best (100%) and significantly superior in inhibiting the growth of the fungus at all concentrations (0.025, 0.05 and 0.1%), while among the non-systemic fungicides mancozeb at all three concentrations (0.1, 0.2 and 0.3%) and zineb at 0.3% were very effective (100%). Field studies on the efficacy of fungicidal sprays on seedling blight severity revealed that disease intensity was lowest in mancozeb applied plots (19.00 PDI) followed by propiconazole (42.22 PDI) over the untreated control. Fungicide treated plots also had increased foliage yield (10.6 mt ha⁻¹).

Key words: *Alternaria ricini*, castor, *Philosamia riccini*, seedling blight

Citation: Das R, Borgohain A and Das K. 2013. Effect of inoculation methods and plant age on seedling blight of castor caused by *Alternaria ricini* and its management with fungicides. *J Mycol Pl Pathol* 43(3): 336-340.

Research Article

Influence of Weather Variables on Incidence of Groundnut Bud Necrosis Virus in Tomato (GBNV-To)

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Abstract

Tospovirus infecting tomato has been identified as a strain of groundnut bud necrosis virus based on coat protein gene sequence and designated as GBNV-To. The causal virus is transmitted by melon thrips, *Thrips palmi* in a propagative manner. Correlation studies with weather parameters on thrips population revealed that the thrips population was positively correlated with maximum temp, minimum temp and relative humidity (RH), and negatively correlated with disease incidence, minimum RH and rainfall during kharif (rainy season). The coefficient of multiple determinations R^2 value was 0.953 and contributed 95.3% variation in the development of the disease.

Key words: Groundnut, bud necrosis virus, tomato, weather variables

Citation: Ruth C and Subba Rao M. 2013. Influence of weather variables on incidence of groundnut bud necrosis virus in tomato (GBNV-To). *J Mycol Pl Pathol* 43(3): 341-344.

Research Article

Fecundity of Whitefly Biotypes in Relation to Leaf Curl Virus Disease in Tomato (*Lycopersicon esculentum*) and Milk Weed (*Euphorbia geniculata*)

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Abstract

The infection of *Tomato Leaf Curl Virus* (ToLCV), in tomato (*Lycopersicon esculentum* L.) and milk weed (*Euphorbia geniculata* L.) was influenced by biology of the whitefly *Bemisia tabaci* B- biotype, vectors of the disease. Studies revealed that more fecundity was observed both in indigenous and B-biotype whitefly population on *leaf curl virus* infected tomato plants. The developmental stage in the first generation was 258.4, 512.5 per plant on infected tomato and 561.85, 1810.3 per plant on infected milk weed compared to 155.3, 261.6 and 228.8, 253.5 per plant respectively, on healthy tomato and milk weed. The increased population was also recorded in the second generation on infected tomato recording 1944.6 and 6162.3 developmental stages per plant in tomato and milk weed, respectively than on healthy plants. Further, the biochemical analysis of ToLCV infected tomato and milk weed plants showed reduced level of chlorophyll, sugars, phosphorous and potassium with increased level of total phenol, nitrogen and protein content than in healthy plants. The increased colonization and overcrowding of whitefly on virus infected plants would cause emigration of viruliferous adults from the infected plants to healthy plants resulting in increased spread of the virus and the disease in tomato crop.

Key words: *Bemisia tabaci*, biotype, *Euphorbia geniculata*, fecundity, *Tomato Leaf Curl Virus*

Citation: Shilpa GK, Nagaraju N and Padmaja AS. 2013. Fecundity of whitefly biotypes in relation to leaf curl virus disease in tomato (*Lycopersicon esculentum*) and milk weed (*Euphorbia geniculata*). *J Mycol Pl Pathol* 43(3): 345-352.

Research Article

Chemical and Histopathological Changes in Sesame Phyllody caused by PLO's

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Abstract

Biochemical and histopathological changes in phyllody infected sesame plants were studied. Phyllody infection resulted in increased dry matter, phenol content and transpiration rate in infected plant parts , while moisture content, chlorophyll content, total nitrogen and crude proteins decreased. Phyllody infection caused hormonal imbalance by altering the normal patterns in hormonal transport or translocation, ultimately resulting in drastic changes in anatomical, histopathological and morphological traits.

Key words: Anatomy, bio-chemical changes, histopathology, phyllody, *Sesamum indicum*

Citation: Pathak DM, Parakhia AM and Akbari LF. 2013. Bio-chemical and histopathological changes in sesame phyllody caused by PLO's. *J Mycol Plant Pathol* 43(3): 353-359.

Research Article**Mycoflora and Natural Aflatoxin Contamination in some Traditional Medicinal Plants from Jammu, India****Dimple Gupta, Sumedha Sharma and YP Sharma***Department of Botany, University of Jammu, Jammu- 180006, Jammu and Kashmir, India. Email: yashdbm3@yahoo.co.in***Abstract**

Three medicinal plants (*Bunium persicum* (Boiss.) Fedt., *Zanthoxylum armatum* DC. and *Glycyrrhiza glabra* L.) from Jammu region of Jammu and Kashmir state of India were subjected to mycological and aflatoxin analysis by various isolation techniques and HPLC. Thirty fungal species belonging to twelve genera were isolated of which *Aspergillus flavus*, *A. niger*, *A. ochraceus* and *Mucor mucedo* were the most frequent. *Z. armatum* harboured the highest number of fungal species. Natural aflatoxin contamination was detected in 29.2% of the investigated samples with a mean range of 1193 ± 0.68 – 4381 ± 1.94 ppb. These values are much higher than the maximum safe limits of 30 ppb set forth by World Health Organization. Although, incidence of mycoflora and aflatoxins has been previously detected in *G. glabra*, the present study constitutes the first report of incidence of mycoflora and aflatoxin contamination in *B. persicum* and *Z. armatum* from India.

Key words: Aflatoxin B₁ and B₂, fungal contamination, medicinal plants**Citation:** Gupta Dimple, Sharma Sumedha and Sharma YP. 2013. Mycoflora and natural aflatoxin contamination in some traditional medicinal plants from Jammu, India. *J Mycol Plant Pathol* 43(3): 360-368.

Research Article**Storage Fungi and their Deteriorative Effects on Cumin Seeds****RL Mahala, RP Ghasolia* and SC Jain**

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Abstract

Eight representative seed samples of cumin collected from major cumin growing regions of Rajasthan at pre- and post-storage stages revealed variations in incidence of seed borne fungi that effect on seed quality and seedling stand. In standard Blotter and Agar Plate tests, *Alternaria alternata*, *Aspergillus flavus*, *A. niger*, *Curvularia lunata*, *Fusarium fusarioides*, *F. pallidoroseum*, *Rhizoctonia solani* and *Rhizopus stolonifer* were recorded on incubated seeds. The samples from Bhilwara region had maximum incidence of fungi (76 and 83 %), whereas minimum (42 and 48%) were those from Jobner at pre- and post storage stages, respectively as detected by Blotter Method. Incidence of seed borne fungi in seeds were comparatively more (80%) in samples collected at post-storage stage than at pre- storage stage (71%). Seeds with 8% moisture content, stored at 10 C and 60 % RH for 6 months showed minimum mycoflora and maximum seed germination. Incidence of seed borne storage fungi at all levels of temperatures was more (13 %) at 6 months of storage than at 4 months of storage while some reverse happened in case of field fungi. The volatile oil content in seeds inoculated with *A. alternata*, *A. flavus*, *C. lunata* and *F. fusarioides* was increased while it decreased in seeds inoculated with *A. niger*, *F. pallidoroseum*, *R. solani* and *R. stolonifer*. Toxic metabolites of all the pathogenic fungi reduced seed germination, root and shoot elongation and seedling vigour.

Key words: *Cuminum cyminum*, deteriorative effects, seed borne fungi, volatile oil

Citation: Mahala RL, Ghasolia RP and Jain SC. 2013. Storage fungi and their deteriorative effects on cumin seeds. *J Mycol Pl Pathol* 43(3): 369-377.

Short Communication**Current Status of Rice Diseases in Punjab****Amarjit Singh¹ and JS Brar²**

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Key words: Diseases, plant clinic, rice

Citation: Singh A and Brar JS. 2013. Current status of rice diseases in Punjab. *J Mycol Pl Pathol* 43(3): 378-380.

Short Communication

Combined Incidence of Two Viruses-*Banana Streak Virus (BSV)* and *Banana Bunchy Top Virus (BBTV)* in Banana Cv Lal velachi, belonging to AAB Genotype

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Key words: *Banana streak virus, Banana bunchy top virus, Cv. Lal velchi*

Citation: Gaikwad P, Mungekar D, Verma R, Datar VV and Nawale PB. 2013. Combined incidence of two viruses-*Banana Streak Virus (BSV)* and *Banana Bunchy Top Virus (BBTV)* in a banana cv Lal velachi, belonging to AAB genotype. *J Mycol Pl Pathol* 43(3): 381-382.

Short Communication

Induction of Host Resistance with Biotic and Abiotic Plant Defense Activators against White Rust in Mustard

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Key words: *Albugo candida*, induced resistance, mustard, plant defence activators

Citation: Tirmali AM and Kolte SJ. 2013. Induction of host resistance with biotic and abiotic plant defense activators against white rust in mustard. *J Mycol Pl Pathol* 43(3): 383-385.

Short Communication**Integration of Bio-control Agents and Soil Amendments for the Management of Fusarium Wilt in Carnation****HS Negi and Harender Raj**

Department of Plant Pathology, Dr YS Parmar University of Horticulture and Forestry, Nauni, Solan 173230, Himachal Pradesh, India. Email: hrg_mpp@yahoo.com

Key words: Bio-control agents, carnation, Fusarium wilt, soil amendment**Citation:** Negi HS and Raj H. 2013. Integration of bio-control agents and soil amendments for the management of Fusarium wilt in carnation. *J Mycol Pl Pathol* 43 (3): 386-387.

Short Communication**Field Evaluation of Fungicides for Management of Leaf Spot and Leaf Blotch Diseases of Turmeric****P Muthulakshmi and L Karthiba**

Department of Plant Pathology, Centre for Plant Protection studies, Tamil Nadu Agricultural University, Coimbatore-641 003, Tamil Nadu, India. Email: karthiba@gmail.com

Key words: *Colletotrichum capsici*, fungicides, *Taphrina maculans*, Turmeric

Citation: Muthulakshmi P and Karthiba L. 2013. Field evaluation of fungicides for management of leaf spot and leaf blotch diseases of turmeric. *J Mycol Pl Pathol* 43(3): 388-389.

Short Communication**Effect of Azoxystrobin 25 SC on Survival of Phylloplane and Rhizosphere Microflora of Chilli Plants****P Ahila Devi and V Prakasam**

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Key words: Azoxystrobin 25 SC, *Bacillus subtilis*, chilli, *Pseudomonas fluorescens*

Citation: Ahila Devi P and Prakasam V. 2013. Effect of azoxystrobin 25 SC on survival of phylloplane and rhizosphere microflora of chilli plants. *J Mycol Pl Pathol* 43(3): 390-393.

Short Communication**Variations in Sensitivity of *Rhizoctonia solani* AG-1 IA Isolates from Rice to Carbendazim and Hexaconazole****Manish Agrawal¹ and S Sunder²**

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Key words: Carbendazim, hexaconazole, *Rhizoctonia solani*, rice sheath blight

Citation: Agrawal M and Sunder S. 2013. Variations in sensitivity of *Rhizoctonia solani* AG-1 IA isolates from rice to carbendazim and hexaconazole. *J Mycol Pl Pathol* 43(3): 394-398.

New Report

***Vizella oleariae* Swart Infecting *Ixora coccinea* L. – A New Record of Ascomycetes for India**

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Key words: Amboli Ghat, Ascomycetes, India, *Ixora coccinea* L., *Vizella oleariae*

Citation: Dubey Rashmi and Neelima AM. 2013. *Vizella oleariae* Swart infecting *Ixora coccinea* L. – a new record of Ascomycetes for India. *J Mycol Pl Pathol* 43(3): 399-400.