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CEREBRAL BABESIOSIS IN SAHIWAL CATTLE—A CASE STUDY

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Abstract

Bovine babesiosis is an economically important tick borne disease of tropical and sub tropical parts of the world including India. The disease causes high morbidity and mortality in cattle and buffaloes. An adult Sahiwal cattle aged between 5-6 years from Kamaluaganja area of Haldwani, District Nainital, Uttarakhand presented with the fever, anorexia, icterus, anaemia, corneal opacity, haematuria, convulsions and hyperexcitability. It was suspected for haemoprotozoan infection. Blood sample was collected and brought to the Department of Veterinary Parasitology, Pantnagar, Uttarakhand for microscopic examination. Thin blood smear microscopic examination was done using Giemsa Stain. Blood smear examination revealed the presence of piroplasmic forms of *Babesia* sp. in RBC of the cattle. The cattle was treated with single dose of intramuscular injection of diminazine aceturate @3.5mg/b.wt. along with consecutive three days injectable doses of Oxytetracycline @10mg/kg.bwt. Injectable haematinics and multivitamins were given on alternate day interval. The cattle quickly responded to therapy within 72 hours. Blood sample was again examined after 7days of post-treatment. Blood sample examined on 7th day was found negative for piroplasmic stages and the animal showed no corneal opacity and convulsions after treatment.

FIELD EVALUATION OF *METARHIZIUM RILEYI* (DEUTEROMYCOTINA : HYPOMYCETES) AS A MYCOINSECTICIDE FOR MANAGEMENT OF LEPIDOPTERAN PESTS

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Abstract

Six native entomofungal strains of *Beauveria bassiana*, *Metarhizium anisopliae*, *M. rileyi*, *Paecilomyces fumaroseus* and *Lecanicillium lecanii* were evaluated against 2nd instar larvae of the maize fall armyworm (FAW) *Spodoptera frugiperda* (J. E. Smith) and *Spodoptera litura* (Fabricius, 1755) (Lepidoptera: Noctuidae) in a laboratory bioassay. Among the six strains tested, *M. rileyi* UASRBC-Mr2 showed LC₅₀ of 5.37 x 10⁷ spores/ml and UASRBC-Bb52 showed LC₅₀ of 1.92 x 10⁶ spores/ml. Field evaluation with these six promising strains were conducted against maize fall armyworm and *S. litura* during 2020 at UAS Raichur, Karnataka, India. Field trial results indicated that highest per cent reduction was recorded in *M. rileyi*, UASRBC-Mr2 (91.34 per cent) followed by *M. anisopliae* UASRBC-Ma2 (86.89 per cent) on 30 days after spraying and increase in yield were observed in the plots treated with these six entomofungal pathogen. Maximum yield recorded in *M. rileyi*, UASRBC-Mr2 (9256.67 Kg/ha) treated plot followed by *M. anisopliae* UASRBC-Ma2(8986.67 Kg/ha) (F value = 323.22; P<0.0001). The results indicated that potential of *M. rileyi* UASRBC-Mr2as biocontrol agent for management of the fall armyworm and *S. litura* in maize and cabbage cropping ecosystem.

IDENTIFICATION OF NEWLY DEVELOPED DROUGHT TOLERANCE MAIZE INBRED LINES UNDER MANAGED FIELD SCREENING

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Abstract

Maize is traditionally a kharif season crop in India and nearly 85% maize grown under rainfed area. Drought is one of the major causes of yield reduction in maize among abiotic stresses. Development of high yielding and drought tolerance maize



hybrids essentially required heterotic and drought tolerant parental lines in addition to high productivity for drought prone areas. Screening of germplasm under managed abiotic stress field conditions is an efficient way to identify stress tolerant germplasm. Eighty-eight newly developed fixed inbred lines and 12 parental lines of released hybrids were evaluated under normal and drought environment at Regional Maize and Seed Production Centre (ICAR-IIMR), Begusarai during rabi-2020-21. The drought stress was imposed by withholding irrigation for three weeks starting before flowering and continues to grain filling stage. Drought severely affected the reproductive development of plant and seed setting due to widening of anthesis-silking interval (ASI). Kernel test weight was also reduced 12.17% to 27.43% under drought environment. Grain yield was reduced 8.8 % to 38.4% under drought environment. Forty inbred lines showed drought susceptibility index less than unity showing better drought tolerance. On the basis of per se performance and drought susceptibility index eleven inbred lines namely IMLSB 49-2, WNC 72347, IMLSB 301-, IMLSB 1299-5, IMLSB 93-1, IMLSB 591-2 IMLSB 43-2, IMLSB 37-2, IMLSB 2034 and IMLSB 2166 were identified comparatively more drought tolerant. Two inbred lines IMLSB 49-2 and IMLSB 43-2 showed less yield reduction as compared to normal environment and high yield under normal and drought environment. These eleven lines may be utilized for the development of drought tolerant hybrids after estimating combining abilities and heterosis. These inbred lines may also be utilized for constitution of drought tolerant base population following chain crossing for further extraction of next generation drought tolerant inbred lines.

MANAGEMENT OF POWDERY MILDEW OF OKRA THROUGH NATIVO (TEBUCONAZOLE 50% + TRIFLOXYSTROBIN 25% WG) CHEMICAL UNDER FIELD CONDITIONS

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Abstract

Powdery mildew of okra caused by *Erysiphe cichoracearum* DC is one of the important diseases affecting the crop. A field trial was conducted at Agricultural Research Station, Nipani, during kharif/Rabi 2016-17 to 2017-18 to find out the effective fungicidal application for its management. The crop was sprayed with seven different fungicides along with check starting from the first appearance of the disease. Two sprays of Nativo (Tebuconazole 50% + Trifloxystrobin 25% WG) 0.23% (T2), Nativo (Tebuconazole 50% + Trifloxystrobin 25% WG) 0.28% (T3), Nativo (Tebuconazole 50% + Trifloxystrobin 25% WG) 0.32% (T4), Trifloxystrobin 50% WG 0.66% (T5), Tebuconazole 250 EC (Tebuconazole 25.9% w/w EC) 0.66% (T6), Sulphur 80% WP 2.93% (T7) and Nativo (Tebuconazole 50% + Trifloxystrobin 25% WG) 0.16% (T8) were taken up in the treated plots. Effect of each treatment on the disease incidence and yield was recorded. The disease index was significantly reduced in plots treated when compared to the untreated control. Analysis of the data for one season/year showed that okra powdery mildew can be significantly reduced by spraying 0.28% Nativo (Tebuconazole 50% + Trifloxystrobin 25% WG) @ 150+75 a. i. (g)/ha followed by 2.93% Sulphur 80% WP @ 2504 a. i. (g)/ha in both the year 2016 and 2017. Highest bhendi yield of 14.07 and 13.19 t/ha was harvested in the treatment spraying with 0.28% Nativo (Tebuconazole 50% + Trifloxystrobin 25% WG) @ 150+75 a. i. (g)/ha followed by 2.93% of Sulphur 80% WP @ 2504 a. i. (g)/ha 13.25 and 12.21 t/ha in both the year 2016 and 2017. There were no symptoms of phytotoxicity and other harmful effects on okra plants either on leaves or on stem after application of Nativo @ 175+87.5 a. i. (g)/ha and Nativo @ 350+175 a. i. (g)/ha used in this trial (by visual observation).

OPTIMIZATION OF PROTEIN RECOVERY FROM COMMERCIAL DEFATTED RICE BRAN (CDRB) BY ULTRASONIC ASSISTED ALKALINE EXTRACTION

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Abstract

Defatted rice bran has approx. 15% (w/w) protein content, which is considered to be of high nutritional value protein, although it is difficult to extract protein from by-products, such as Defatted Rice Bran. Central Composite Rotatable Design is used to study the effects of variables X1 (temperature: 40, 50, 60°C), X2 (pH:9, 10, 11) and X3 (stirring time: 30, 45, 60 min) on