

cells and sucking the contents. These cells lose their normal color, and when many adjacent cells are damaged, the tissue appears as whitish spots or silvery spots or streaks. In advanced injury the leaves take on a blast appearance. This pest is vector of Tomato Spotted Wilt Virus. The most important in preventing plant virus infection is controlling the vectors. Yucca extract can make a film on leaves and this film may prevent insects from landing and settling leaves. This research was carried out to study preventing effects of yucca extract against settlement of *T. tabaci* on tomato leaves. Yucca extract was sprayed (2/1000) on tomato leaves and after 5 h. 150 *T. tabaci* adults were released on leaf cages, tests were replicated 20 times. After 24 hours number of *T. tabaci* adults on leaves was recorded. Significant differences were observed between settlement rate of *T. tabaci* on leaves and control ( $P < 0.001$ ).

#### Alternate hosts of Chilli thrips, *Scirtothrips dorsalis* during off season in different districts in Northern and Central Karnataka

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Survey was carried out during off season in the month of April and May 2007 to find out alternate hosts for Chilli thrips, *Scirtothrips dorsalis* in different villages of Haveri, Dharwad, Gadag, Bellary, Gulbarga, Chikkamagalur, Shimoga and Hassan districts. Based on the results of survey carried out it revealed that the thrips recorded on plants belongs to 11 families. Among these three species of plants belongs to Papilionaceae, three species belongs to Solanaceae and one species each belongs to Meliaceae, Punicaceae, Caesalpinaceae, Rutaceae, Euphorbaceae, Ascalpidiaceae, Asteraceae, Roseaceae, Solanaceae and Mimosaceae. From the present investigation, it was observed that in majority of chilli growing belts especially during off season *S. dorsalis* known to survive plants belongs to Papilionaceae, Meliaceae, Mimosaceae and Ascalpidiaceae and also plants belongs to Solanaceae family other than chilli.

#### Role of border crop for the management of chilli fruit borer, *Helicoverpa armigera*

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Field experiments were carried out for two years during kharif 2006 and 2007 at Agricultural Research Station, Devihosur, Haveri, Karnataka to find out the effect of border crop for the management of chilli fruit borer, *Helicoverpa armigera*. The experiment consisted of eight treatments with five replications in each treatment. Border crop of maize was sown fifteen days prior to chilli planting. Raised nursery seed beds were prepared with seeds of Byadagi dabbi. Thirty five days old seedlings were transplanted to main field. Among different treatments, it was found that chilli crop bordered by two rows of maize at every 0.5 acre area (31.2x60sqm) with two interventions of spray, first spray with Neemazal 1% @ 2 ml per l at 7 WAT and second spray with Difenthiuron 50 WP @ 0.75 g per l at 9 WAT recorded higher yield (6.90 q/ha) with least percent fruit damage of 4.58 at 13 WAT and found significantly superior to standard check and untreated check.

#### Investigating allelochemical resistance traits of muskmelon (*Cucumis melo* L.) against fruit fly (*Bactrocera cucurbitae* (Coquillett)) in hot arid region of Rajasthan

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Musk melon (*Cucumis melo* L.) is one of the important horticultural crops worldwide. Allelochemical resistance traits are an important component for management of the melon fruit fly, *Bactrocera cucurbitae* owing to difficulties associated with chemical and biological control. select biochemical traits - total sugar, reducing sugar, non-reducing sugar, tannins, phenols, alkaloids, flavinoid and pH of fruit were studied on eleven genotypes of muskmelon, *Cucumis melo* L. in relation to resistance against *B. cucurbitae* under field conditions. Significant differences were found in tested genotypes for fruit infestation and larval density/ fruit. AHMM/BR-1, RM-50 and AHMM/BR-8 were the most resistant; MHY-5, Durgapura Madhu and Pusa Sarabati were moderately resistant; AHMM/BR-13, Pusa Madhuras and Arka Jeet were susceptible. Arka Rajhans and GMM-3 were the highly susceptible genotypes to fruit fly in 2011 and 2012. The larval density per fruit increased with an increase in percentage fruit infestation and there was a significant positive correlation ( $r = +0.97$ ) between per cent fruit infestation and larval density per fruit. Total sugar, reducing sugar, non-reducing sugar and pH were the lowest in resistant and the highest in susceptible genotypes. Tannins, phenols, alkaloids and flavinoid were the highest in resistant and lowest in susceptible genotypes. Total alkaloid and pH explained 97.96% of the total variation in fruit fly infestation and 92.83% of the total variation in larval density per fruit due to alkaloids and total sugar.

#### Potential compounds from entomopathogens for the control of lepidopteran insects

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Microorganisms have the capability to synthesize many biologically active secondary metabolites such as antibiotics, herbicides, pesticides, anti-parasitic compounds, and the enzymes such as cellulase chitinase and xylanase. We focused our attention to identify compounds from 1500 strong microbial germplasm collection with biological activity similar to spinosad, that have the capability to kill insect pests as *Helicoverpa armigera* and *Spodoptera litura*. A total of 111 entomopathogenic microbes were screened, out of which 16 were found to have the potential against three major lepidopteran pests, *Helicoverpa armigera*, *Spodoptera litura* and *Chilo partellus*. Crude culture filtrate extracts and the biomass of actively growing microbial cultures were bioassayed against the early instars of lepidopteran pests on artificial semi-synthetic diet. Glass house experiments were conducted to test the efficacy of most promising isolates. The active compounds of the most potential strains will be purified by solvent partitioning, solid phase extraction (SPE), silicagel thin layer chromatography, open column chromatography and high performance liquid chromatography (HPLC). The active compounds will be identified by mass spectrometry and nuclear magnetic resonance (NMR) studies.

#### Pink boll worm *Pectinophora gossypiella* (Saunders) infestation on some Bt and Non Bt hybrids in India

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