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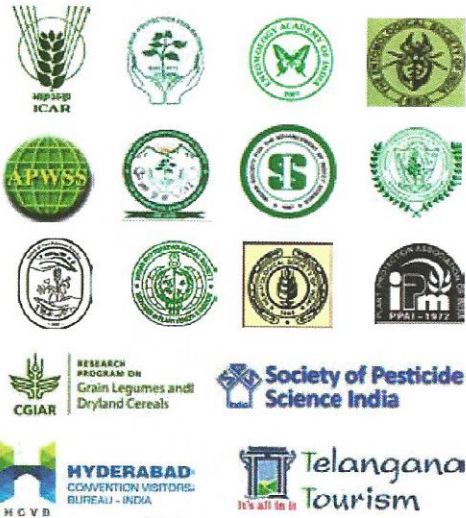
## Crop Protection to Outsmart Climate Change for Food Security & Environmental Conservation

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# Abstract Book



introduction from the New World, though it was reported in different time. Invasive pests in the absence of natural enemies are often to flare up at initial phase of introduction in new areas. Nymphal parasitoid, *Encarsia guadeloupae* (Hymenoptera: Aphelinidae) on *A. rugiopectulatus* and *Encarsia* spp. on *A. atratus* were found to be very effective up to 82% natural parasitism. However, no natural parasitism reported on nesting whiteflies. *E. guadeloupae* was well established by augmentation by re-distribution and field insectary techniques. The parasitoid population can also be conserved through planting of intercrop such as *Canna indica* as banker plants in coconut ecosystem. However, its activity is not uniform across the infested locations and lack of temperature tolerance observed. Therefore, a potential alternative entomopathogenic fungus, *Isaria fumosorosea* Wize (ICAR-NBAIR pfu-5) was evaluated against *A. rugiopectulatus* and *A. atratus*. The eggs mortality of 35-99%, early nymphal instars (48-91%) and late nymphal instars (36-86%) and pupae (28-80%). The fungus kills all the developmental stages of this pest and further, its bioefficacy was validated under condition in different states in India for further integration of management strategies.

### O32-10. Distribution, dispersal and biological control of recently introduced pests of sweet chestnut ecosystem in Northwest Portugal

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The European chestnut agro-ecosystem is of high social, economic, and landscape importance in Portugal, being actually very debilitated by alien and invasive pests. *Cryphonectria parasitica* associated to Chestnut Blight, and the Asian chestnut gall wasp, *Dryocosmus kuriphilus* are alien and invasive pests recently introduced in Portugal, that rapidly spread to all important chestnut areas with consequent chestnut production losses. To manage *C. parasitica* and *D. kuriphilus*, biological control was implemented. For Chestnut Blight, hypovirulent strains (CHV1) was applied, and the parasitoid *Torymus sinensis* was introduced to control the chestnut gall wasp. This work describes, in the Minho Region (Northwest Portugal), the population structure related to vic genes (vegetative incompatibility system) of the virulent pathogenic fungus for CHV1 application, and the results of biocontrol of *D. kuriphilus* by the introduced *T. sinensis* and native parasitoids. The average percentage of parasitism in 2018 was 9.8%, although it varied across time and the sites studied. In 2019 a higher percentage of 18.74% was observed. The average number of cells per gall in 2018 was 5.94, and 6.3 in 2019. Nine species belonging to the genus *Torymus*, *Megastigmus*, *Sycophila*, *Eurytoma*, *Mesopolobus*, *Ormyrus* and *Eupelmus* were identified in 2018. The results indicate that native parasitoids are important in the natural limitation of *D. kuriphilus*, but insufficient for controlling the populations of the chestnut gall wasp. The percentage of parasitism by *T. sinensis* on *D. kuriphilus* is still low, as a consequence of its recent introduction in the orchards.