

Novel mass production technology for parasitoid, *Encarsia guadeloupae* for the suppression of rugose spiraling whitefly



Encarsia guadeloupae

Technology Description

This technology is for mass production of potential parasitoid, *Encarsia guadeloupae* for the biosuppression of invasive rugose spiraling whitefly (RSW), *Aleurodicus rugioperculatus* infesting coconut and many other crop plants. This parasitoid adults attack nymphal stages of RSW which would result in reduction in RSW population, usage of chemical pesticides, crop protection cost and ill effect of pesticides in the environment, conservation of biodiversity, socio-economic benefit through minimum input usage in coconut and oil palm ecosystem. Apart from this, biological control is as effective as of chemical insecticides and lead to sustainable crop protection. Besides, this parasitoid is eco-friendly, safe and do not have any adverse effects on non-target organisms and other living organisms in the environment, unlike the chemical insecticides which are highly hazardous and pollutes soil, water and environment.

Background

Rugose spiraling whitefly is highly polyphagous pest infesting coconut, oil palm, banana, sapota, areca nut, maize and many other horticultural and ornamental plants. Moreover, the pest rapidly spread to all coconut and oil palm growing districts in India causing extensive damage to the plantations and panicked farmers resorted to spraying of chemical pesticides but this turned out to be a temporary fix. This parasitoid, *Encarsia guadeloupae* is very effective parasitoid, performing wide range of temperature and has been augmented and conserved strategically for management of RSW in several countries. The effective remedy was biological control and this aphelinid parasitoid causing natural parasitism of 56-82% under field conditions and even reaches 100% under favourable weather conditions.

Benefits /Utility

Biological control of insect pests is economically feasible, ecologically compatible and environmentally benign, equally effective to chemical insecticide & cheaper and sustainable, Conservation of biodiversity in ecosystem. The parasitoid reduce the rugose spiraling whitefly (56 – 82%) and invasive spiraling whitefly, *Aleurodicus dispersus* population to extent of 65-82%, biosuppression of these invasive whiteflies, reduction in usage of pesticide usage and pesticide load in the environment,

economically feasible, ecologically compatible, equally effective to chemical pesticides and conservation of biodiversity in ecosystem.

Scalability

Large-scale production parasitoid for large scale augmentation and biosuppression of pest in coconut and many other crop plants.

Business and commercial potential

This technology has a wide scope of commercialization and there is a high demand for management of rugose spiraling whitefly and spiraling whitefly in coconut and many other economically important crop plants. Commercial potential is almost throughout the India.

Financial requirement

The cost of production is around Rs.1 /parasitoid. An investment of 15-20 lakhs for polyhouse, 3-5 lakhs for shade nets, other accessories etc. is required to mass produce this parasitoid at large scale.



Parasitized pupae

Parasitoid release

Target Market/Customer

- Coconut is extensively grown in entire South Indian states as well as West and Eastern Coastal states in India. Oil palm is mostly cultivated in Andhra Pradesh and some isolated packets of Telangana and Karnataka. This invasive RSW is serious pest on these crop plants and widely spread in these states and warrant control measures to avoid yield loss in several areas. This technology will be highly useful to coconut and oil palm growers in the country to tackle this notorious pest.
- Coconut and oil palm growing farmers; Coconut Development Board; National Horticultural Board; Department of Agriculture & Horticulture; State Agricultural University, KVKs, FPOs; Coconut and Oil palm industries; Bio-control agent suppliers. This technology already commercialized to one firm. This technology already commercialized to one firm in India.

Social Impact of the Technology

- The present technology is an ecofriendly strategy of obtaining healthy crop which can reduce the usage of chemical insecticides for RSW infested crops and thereby minimize the risks associated with insecticides on environment and non-target organisms including human beings. Conservation of biodiversity in coconut and oil ecosystem.