

New Distributional Record of Rugose Spiralling Whitefly on Coconut in Kamrup and Nalbari districts of Assam

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Rugose spiralling whitefly (RSW), *Aleurodicus rugioperculatus* Martin is the latest invasive pest reported on coconut palms from Pollachi, Tamil Nadu and Palakkad, Kerala during 2016. The pest could have been accidentally introduced from Florida, USA mainly by import of ornamental and other economic palms from the region. *A. rugioperculatus* established swiftly in Peninsular India (Kerala, Tamil Nadu, Andhra Pradesh, Karnataka and Goa) predominantly on coconut palms and to some extent on banana as well. De-sapping from under surface of palm leaflets, *A. rugioperculatus* resulted in exudation of tremendous quantum of honey dew and over which the extensive development of sooty mould (*Leptoxiphium* sp.) could appear on the upper leaf surface of palms. As part of awareness campaign, ICAR-CPCRI has alerted all coconut growing regions in the country as well as stakeholders about the invasive pest through the “National Workshop on the Bio-suppression of Rugose Spiralling Whitefly” held at Kasaragod in January, 2018. The resolution emerged and the message disseminated is about the pesticide holiday envisaged in the management of RSW which included conservatory biological control using the aphelinid parasitoid, *Encarsia guadeloupae* as well as habitat preservation of the sooty mould feeding Leiochrinid beetle, *Leiochrinus nilgirianus* (Chandrika Mohan *et al.*, 2017; Josephraj Kumar *et al.*, 2018).

Surveillance survey

In this context, widespread distribution of the rugose spiralling whitefly, *A. rugioperculatus* was observed on coconut palms in different hamlets of Kamrup and Nalbari districts of Assam in August 2018.



RSW damaged palm in Assam



Spiralling pattern of egg laying

In the surveillance survey organized by ICAR-CPCRI, a new distributional report of the pest in North-East region (Assam) on coconut palms and to a limited extent on the arecanut, ornamental yellow palms, banana and certain croton species (*Codeum*



Egg colony on under surface of leaflet

variegatum) could be highlighted. Few farmers have reported its occurrence on betel vine as well. Occurrence of RSW in different hamlets of Kamrup and Nalbari districts is presented in Table 1.

District	Hamlets	Intensity of infestation
Kamrup	Damdama	+++
	Hajo (Bishnupur, Bordudi)	+++
	Kalitakuchi	++
	Nahira, Rampur	-
	Holongjuli	-
Nalbari	Bijulighat	++
	Barkuriha	++
	Madhapur	++
	Katpua	++
	Tilana	+
	Intensity of infestation ranges from – (zero), + (1-5 live egg colony per leaflet), ++ (5-10 live egg colony per leaflet), +++ (> 10 live egg colony per leaflet)	

Based on the survey analysis and discussion made with the farmers during the snap survey programme, the pest damage symptoms were observed at least eight months back in the region especially in Nalbari district, where the pest incidence is at the receding phase in many gardens at this point of time. Natural parasitism by the aphelinid parasitoid, *Encarsia*

guadeloupae was also observed in Nalbari district on the nymphs of *A. rugioperculatus* with tremendous dissolution of colonies and blackening of RSW nymphs. Observation of RSW revealed 82.1% natural parasitism by *E. guadeloupae* in samples collected from Nalbari and Kamrup districts. Pest reduction is mainly accomplished in areas with higher level of parasitism by *E. guadeloupae*. In addition, it was also observed in the neuropteran predator green lacewing fly, *Dichochrysa astur* in Madhapur, Nalbari district where the pest population is significantly reducing. More than 65% of fronds were found affected in the pest affected palms with intensity of infestation exceeding more than 15 live egg colonies per leaflet.

Significant deposition of sooty mould on the upper surface of palm leaflets is quite visible impairing photosynthesis and this forms the characteristic symptom of pest attack. Some farmers of the region are of the opinion that the fumes from the plastic industry nearby could be responsible for the blackening of palms. Furthermore, enhanced senescence of older palm leaflets could be observed with no death of the palm recorded in any of the region under surveillance. The pest damage could be observed visibly on tall palms along the roadside in Damdama, Hajo and Kalitakuchi regions of Kamrup district as well as in Bijulighat, Barkuriha, Madhapur, Katpua regions of Nalbari district (Table 1). RSW incidence is quite prominent along the Highway road side and is reduced considerably on coconut palms in the interior region away from the Highway side thereby indicating the spread of the pest mainly localized along the vehicular movement zones carrying the infested materials.



Establishment of released sooty mould feeding Leiochrinid beetles in Assam



Awareness meeting at Tilana



Distribution and release of sooty mould feeding beetle in Assam

Awareness campaign

In order to highlight the true cause of blackening of coconut palms in the region, an awareness meeting was organized at Tilana, Mugkuchi, Nalbari district, Assam by scientists of ICAR-CPCRI on 14th August 2018 and explained about the blackening of palm leaflets by RSW infestation and not by other means. The bio-suppression strategies of rugose spiralling whitefly included pesticide holiday, effective sensitization on the bio-suppression of the RSW by the aphelinid parasitoid, *E. guadeloupeae* and bio-scavenging of infested palms by introductory release of the sooty mould feeding beetle, *L. nilgirianus* as well as distribution of pest free coconut seedlings were emphasized.

To combat the pest incidence, augmentative biological control by releasing palm leaflets (10 cm) containing the *E. guadeloupeae*-parasitized RSW pupae as well as the classical bio-scavenging programme by introducing sooty mould feeding Leiochrinid beetle, *L. nilgirianus* was undertaken in all pest affected hamlets. These beneficial insects were brought from Kayamkulam, Kerala as part of the classical biological control and bio-scavenging programme initiated for the first time in coconut sector to ingress the rugose spiralling whitefly attack in an eco-friendly manner. Overwhelming response was received in the release programme fostered by active support by participating farmers in all points of release in Kamrup and Nalbari districts, Assam.

Epilogue

As part of arresting the spread of RSW in different parts of Assam, strict quarantine should be ensured

in the transport of coconut seedlings from one place to other in the North-East region. Coconut seedlings should be absolutely free from RSW during distribution to farmers which should be strictly enforced in this sensitive zone. The introductory conservatory biological control as well as the classical bio-scavenging programme initiated by ICAR-CPCRI by release of *E. guadeloupeae* and *L. nilgirianus* should be protected for successful establishment and reducing the population of RSW in the region. The enthusiastic response from the farming community could be utilized by area-wide release of the beneficial insects subsequently for effective suppression of the rugose spiralling whitefly. To conclude, awareness campaign should be further strengthened by all stakeholders for effective reach out of pesticide holiday approach in the bio-suppression of rugose spiralling whitefly in the North-East region.

References

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