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**Research Note**

# Recovery of the exotic parasitoid *Pseudleptomastix mexicana* Noyes and Schauff (Hymenoptera: Encyrtidae) on the invasive papaya mealybug, *Paracoccus marginatus* Williams and Granara de Willink in India

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**ABSTRACT**: The encyrtid *Pseudleptomastix mexicana* Noyes and Schauff was recovered for the first time from the papaya mealybug, *Paracoccus marginatus* Williams and Granara de Willink in India in 2011-12 after 10 to 20 months of release in Bangalore and also in Pune in April 2012. However, parasitism by *P. mexicana* on *P. marginatus* did not exceed more than five per cent in both the locations.

**KEY WORDS**: *Pseudleptomastix mexicana,* parasitoid, papaya mealybug, *Paracoccus marginatus*

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The papaya mealybug, *Paracoccus marginatus* Williams and Granara de Willink (Hemiptera: Pseudococcidae) is a native of Mexico. Since its description in 1992, it has invaded several countries including India, found first at Coimbatore in July 2008 in Tamil Nadu (Muniappan *et al.,* 2006) causing extensive damage to papaya plantations later in several states in India (Shylesha *et al.,* 2011). The activity of the parasitoids was monitored in papaya plantations infested with the mealybugs at IIHR farm, Bangalore and also at Ganeshkind farm at Pune. The leaves and fruits of papaya infested with *P. marginatus* were periodically collected and brought to the laboratory. The samples were kept in clean plastic jars to observe the emergence of natural enemies, if any. Samples collected in May 2011 and June, 2012 at IIHR Farm, Bangalore and Pune had yielded many dark brown with a coppery sheen adult parasitoids. They were collected and sent to NBAII Bangalore and I.A.R.I, New Delhi for identification. It was determined as *Pseudleptomastix mexicana* Noyes and Schauff.

*Pseudleptomastix mexicana* is an important native parasitoid of *P. marginatus* in Mexico (Noyes and Schauff, 2003; Kauffman *et al*., 2001). *Pseudleptomastix mexicana* was cultured and shipped to many countries along with other parasitoids for making field releases including India (Shylesha *et al.,* 2011). In October 2010, *P. mexicana* was released in IIHR farm in September 2010 in Bangalore and Ganeshkhind Farm at Pune. Although establishment of *P. mexicana* was seen in the initial months due to hyper activity and fast colonization of *Acerophagus papayae* Noyes and Schauff and long life cycle of *P. mexicana* (21-25 days), there was no immediate recovery of *P. mexicana* in these areas. Also, no field recovery of *P. mexicana* was made in spite of several field releases in Palau and Guam (Muniyappan *et al.*, 2006; Meyerdirk *et al.,* 2004), Sri Lanka (Wahundennya *et al.,* 2009) and also in Florida (Kaushalya *et al*., 2008). Surprisingly, samples collected in April 2011 and June 2012 at IIHR farm yielded *P. mexicana*. Parasitism by *P. mexicana* ranged from 3.50 to 4.85%. Similarly, *P. mexicana* was also recovered from *P. marginatus* at Ganeshkhind farm, Pune after 15 months of release in February 2012. The parasitism ranged from 2.80 to 4.35%.

According to Arnold (2001), *P. mexicana* is another potential parasitoid for *P. marginatus*. The recovery study conducted in India revealed that *P. mexicana* played

a secondary role next to *A. papayae* in suppression of *P. marginatus*. Perusal of literature also revealed that *P. mexicana* did not appear to be a promising parasitoid of *P. marginatus* in different countries, and in all these cases, *A. papayae* was dominant over *P. mexicana* when released together (Mani *et al*., 2012). Probably, the chances of establishment are more if *P. mexicana* is alone released in large numbers in papaya gardens infested with *P. marginatus.*

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