



Natural enemies of Babul whitefly, *Acaudaleyrodes rachipora* (Singh) (Hemiptera: Aleyrodidae) from Jodhpur, India

V. P. PANDEY, R. SUNDARARAJ¹ and S. I. AHMED²

Himalayan Forest Research Institute

Panthaghati, Shimla 171 009, Himachal Pradesh, India

E-mail: pandeyvp@sify.com

ABSTRACT: A total of 23 natural enemies, which includes 4 species of parasitoids, 18 species of predators and one species of fungal pathogen, were found attacking *Acaudaleyrodes rachipora* Singh from Jodhpur. All the parasitoids belong to the family Aphelinidae in which the record of *Encarsia acaudaleyrodis* Hayat and *Eretmocerus rajasthanicus* Hayat form the first record from India on *A. rachipora*. The predators consist of three species of coccinellids, and fifteen species of spiders. These predators were recorded for the first time on *A. rachipora*. Further, *Beauveria bassiana* Balsamo was found for the first time on *A. rachipora*. The findings are discussed in this communication.

KEY WORDS: *Acaudaleyrodes rachipora*, Babul whitefly, Natural enemies

The babul whitefly, *Acaudaleyrodes rachipora* (Singh) has been listed on *Cassia fistula* L., *Bauhinia* sp., *Dalbergia sissoo* Roxb. and *Euphorbia hirta* L. from Bihar and Baroda. Rao (1958) added *Prosopis* sp. and *Tamarindus indica* L. as host of this whitefly from Andhra Pradesh. David and Subramaniam (1976) included *Cassia auriculata* L., *Abrus precatorius* L., *Delonix elata* (L.) Gamble, *Pithecellobium dulce* (Roxb.) Benth. and *Prosopis juliflora* (Sw.) DC. as hosts from Tamil Nadu and Karnataka. Pillai (1981) reported *Hardwickia binata* Roxb. as a host from Tamil Nadu. Jesudasan and David (1991) recorded it on *Securinega virosa* (Willd.) Baillon, *Peltophorum pterocarpum* (DC.) Backer ex k. Heyne, *Erythroxylum monogynum* Roxb., *Dodonaea*

angustifolia L.f. and *Tephrosia purpurea* (L.) Pers. from Tamil Nadu. It is an important pest on different tree species of Indian arid zone (Sundararaj and Murugesan, 1996) and is distributed throughout the arid and semi-arid tract of India, breeding on 48 host plants (Gaur *et al.*, 1999). A perusal of literature revealed that so far no information is available on the natural enemy complex of this whitefly except the report of three parasitoids viz. *Encarsia acaudaleyrodis* Hayat, *Eretmocerus rajasthanicus* Hayat and *Encarsia transvena* Timberlake, (Hayat, 1976; Krishnan and David, 1996). Hence detailed surveys were undertaken to explore the natural enemies of *A. rachipora* from Jodhpur and the findings are presented in this communication.

¹ Institute of Wood Science and Technology, Bangalore 560003

² Arid Forest Research Institute, New Pali Road, Jodhpur 342005

Table 1. Natural enemies of *Acaudaleyrodes rachipora* in Jodhpur

| Sl. No | Name of natural enemies | Family | Order |
|-------------------------|---|---------------|-------------|
| Parasitoids | | | |
| 1 | <i>Encarsia acaudaleyrodis</i> Hayat | Aphelinidae | Hymenoptera |
| 2 | <i>E. transvena</i> Timberlake | do | do |
| 3 | <i>Encarsia</i> sp. nr <i>dauidi</i> Viggiani & Mazzone | do | do |
| 4 | <i>Eretmocerus rajasthanicus</i> Hayat | do | do |
| Spider Predators | | | |
| 5 | <i>Araneus</i> sp. | Araneidae | Aranea |
| 6 | <i>Cyrtarachne</i> sp. | do | do |
| 7 | <i>Neoscona</i> sp. | do | do |
| 8 | <i>N. mukerjei</i> Tikaders | do | do |
| 9 | <i>N. theis</i> Walker | do | do |
| 10 | <i>Parawixia</i> sp. | do | do |
| 11 | <i>Cheiracanthium</i> sp. | Clubionidae | do |
| 12 | <i>C. trivialis</i> Thorell | do | do |
| 13 | <i>Clubiona</i> sp. | do | do |
| 14 | <i>Peucetia</i> sp. | do | do |
| 15 | <i>Peucetia</i> sp. (Spiderling) | do | do |
| 16 | <i>P. viridana</i> Stoliczka | do | Aranea |
| 17 | <i>Salticid</i> sp. | Salticidae | do |
| 18 | <i>Theridion</i> sp. | Therideidae | do |
| 19 | <i>Xysticus</i> sp. | Thomesidae | do |
| Insect predators | | | |
| 20 | <i>Brumoides suturalis</i> (Fabricious) | Coccinellidae | Coleoptera |
| 21 | <i>Cheiloemenes sexmaculata</i> (Fabricious) | do | do |
| 22 | <i>Serangium parcesetosum</i> Sicard | do | do |
| Entomopathogenic fungus | | | |
| 23 | <i>Beauveria bassiana</i> Balsamo | Moniliaceae | Monilales |

Regular surveys for natural enemies of *A. rachipora* were carried out during 1998-2003 in and around Jodhpur at monthly interval covering nurseries, fields and plantations. Active predators preying *in situ* on the immature and adults of *A. rachipora*, were collected with the help of brush and aspirator. For the recovery of parasitoids the

infested leaves with their natural enemies were collected and brought to the laboratory and were kept in glass jars (10 x 15 cm) and covered with muslin cloth.

Adults of natural enemies that had emerged were collected through aspirator and preserved in

70 per cent alcohol. Entomopathogenic fungus was isolated on babul whitefly nymphs in *in vitro* condition. Later the identity of natural enemies was confirmed from experts of concerned field.

A total of 23 natural enemies, which includes 4 species of parasitoids, 18 species of predators and one species of fungal pathogen, were found attacking *A. rachipora* in Jodhpur (Table 1). The parasitoids were identified as *Encarsia acaudaleyrodis* Hayat, *E. transvena* Timberlake, *Encarsia* sp. nr. *davidi* (Viggiani and Mazzone) and *Eretmocerus rajasthanicus* Hayat. Out of these four parasitoids, *Encarsia* sp. nr. *davidi* was recorded for the first time in India. The predators includes three species of coccinellids i.e. *Brumoides suturalis* (Fabricious), *Cheiloemenes sexmaculata* (Fabricious) and *Serangium parcesetosum* Sicard and fifteen species of spiders viz., *Araneus* sp., *Cyrtarachne* sp., *Neoscona* sp., *N. mukerjei* Tikaders, *N. theis* Walker, *Parawixia* sp., *Cheiracanthium* sp., *C. trivialis* Thorell, *Clubiona* sp., *Peucetia* sp., *Peucetia* sp., *P. viridana* Stoliczka, *Salticid* sp., *Theridion* sp., and *Xysticus* sp. All these predators were recorded for the first time on this whitefly. An entomopathogenic fungus, *Beauveria bassiana* Balsamo was also found infecting the natural population of *A. rachipora* and this forms first report on this insect. The survey revealed the richness of species diversity of predatory spiders on *A. rachipora*. Spiders are regarded to be the most abundant predators of insects in many terrestrial ecosystem (Heidger and Nentwing, 1989). Though severe infestation of *A. rachipora* is common in nurseries on seedlings of important tree species, the non-outbreak of this insect pest in plantations and forests might be attributed to the ability of prevailing natural enemies to suppress *A. rachipora* population.

ACKNOWLEDGEMENTS

The authors are grateful to Dr. B. K. Biswas, Former Joint Director, Zoological Survey of India, Kolkata; Professor M. Hayat, Aligarh Muslim University, Aligarh; and Director, Project Directorate of Biological Control, Bangalore for identification of spider predators, parasitoids and insect

predators, respectively. The identification of the fungal pathogen by Dr. K. K. Srivastava, Scientist E, Division of Forest Protection, Arid Forest Research Institute, Jodhpur, is gratefully acknowledged.

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