

## Predatory mite fauna associated with agri-horticultural crops and weeds from the Gangetic Plains of West Bengal, India\*

KRISHNA KARMAKAR<sup>1</sup> & SALIL K. GUPTA<sup>2</sup>

<sup>1</sup>All India Network Project on Agricultural Acarology; Directorate of Research, Bidhan Chandra Krishi Viswavidyalaya, Kalyani-741235, Nadia, West Bengal, India;

E-mail: acarikarmakar@rediffmail.com

<sup>2</sup>Ex Joint Director and Emeritus Scientist, Zoological Survey of India, Kolkata;

E-mail: salil\_zsindumdum@yahoo.com

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### Abstract

A study was conducted in 2008–2009 to explore the predatory mite fauna from different agri-horticultural crops and weeds in the Gangetic plains of West Bengal. A total of 31 species belonging to nine genera, seven families and two orders were identified; they are listed along with their prey, period of occurrence and the plant habitats in which they were recorded. The most frequently collected species were the phytoseiids *Amblyseius largoensis* (Muma) and *Neoseiulus longispinosus* (Evans), the stigmatids *Agistemus* spp. and the anystid *Walzia indiana* Smith-Meyer & Ueckermann. Given the frequency with which these mites were found, they can be considered potentially useful in suppressing the associated prey mites. The phytoseiids *Paraphytoseius multidentatus* Swirski & Schechter, *Euseius ovalis* (Evans), *Euseius coccineae* (Gupta), *Neoseiulus fallacis* (Garman) and the cheyletid *Cheletogenes ornatus* (Canestrini & Fanzago) were less frequently found and less abundant, implying that their impact on prey population is less important. The remaining species were rare.

**Key words:** Predatory mites, biological control, India.

### Introduction

The use of synthetic chemical pesticides in agri-horticultural crops for pest control is becoming progressively more restricted in the Gangetic Plains of West Bengal, India (Hazra *et al.*, 2011). Thus, knowledge about the prevailing predatory mites on these crops and on associated weeds is becoming more important, for the identification of prospective species to be used in biological control programs.

Among predatory mites, the phytoseiids (Acari: Phytoseiidae) are the most important and dominating group on plants. As a consequence, many faunistic studies of these mites have been conducted. More than 190 phytoseiid species have been reported from India (Evans, 1953; Narayanan & Kaur, 1960; Narayanan *et al.*, 1960; Narayanan & Ghai, 1964; Rao & Rao, 1964; Ghai & Menon, 1967, 1969; Bhattacharya, 1969; Rao *et al.*, 1970; Prasad, 1974; Dhooria, 1982, 1990; Rishi & Rather, 1983; Rather, 1982, 1984, 1985, 1986; Gupta, 1986, 2003; Rishi, 1990; Arbabi & Singh, 1990; Nagaraj, 1991; Sathiamma, 1995; Chatterjee & Gupta, 1996; Chinnaiiah & Mohanasundaram, 2001a, b; Priyadarshini, 2003; Matu *et al.*, 2007; Gowda, 2009) from over 2,280 species known from all over the globe (Chant & McMurtry, 2007; Mallik *et al.*, 2010).

Several other families of plant inhabiting mites are considered potentially important predators. Gupta (2002) reviewed the literature on the taxonomy and bioecology of those mites, discussing their potential as biocontrol agents. They reported the following numbers of species of the most important of those families in India: Anystidae, 6; Ascidae, 9; Bdellidae, 14; Cheyletidae, 15; Cunaxidae, 15; and Stigmatidae, 25. The objective of the present study was to survey the mites of those families from agri-horticultural crops and weeds in the Gangetic Plains of West Bengal, with a view to identifying the potentially important species.