

NEW RECORDS OF MESOSTIGMATID MITES OF STORED FOOD PRODUCTS IN HISAR, HARYANA

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ABSTRACT

A survey (1999-2002) of stored grains and their products in Hisar yielded seven species of mites belonging to mesostigmata. The mites are Phytoseiidae : *Phytoseius* sp., Laelapidae : *Androlaelaps thesuis* (Zumpt), *Haemolaelaps ovalis* Costa, *Hypoaspis aculeifer* Canestrini, *Hypoaspis sardoa* Berlese, Macronyssidae : *Ornithonyssus nitidulae* Costa and Uropodidae : *Leiodynychus parasiticus* Choudhary and Mukherjee. Except *Phytoseius* sp. the remaining six species are being reported for the first time from Haryana, whereas four are new records from India on stored products. *Leiodynychus parasiticus* was most abundant. Host mite list is provided in the text.

Mites play an important role in agriculture as pest of crop. In the post harvest, food grains stored in bulk are prone to the attack of mites resulting in to deterioration, qualitatively and quantitatively. There are a few states in India where some work or information is available on mites of store products like Haryana, Himachal Pradesh, Karnataka, Kerala, Orissa, Uttar Pradesh and West Bengal (Pillai, 1955, 1957; Som Choudhary and Mukherjee, 1971; Prasad, 1974; Ghai, 1976; Mathur, 1979; Mathur and Mathur, 1981, 1982; Nangia and Channabasavanna, 1989; Putatunda *et al.*, 1996, 1997, 1999 and Putatunda, 2002, 2003). The importance of the mites in post harvest storage of food grains is being lately realized throughout the world (Griffiths, 1960; Sinha, 1964; Hughes, 1976).

Mites have attained a pest status due to increasing mechanization of farms resulting in the harvesting of the crop at higher moisture levels. It is important, determining the various types of mites associated with stored products. The present report records the mesostigmatid mites from the state of Haryana.

Samples of animal feed, cotton seed, debris from shop, wheat godown and flour mill, fine wheat flour (maida), gram, gram 'dal', pearl millet, wheat and wheat flour were sampled

regularly throughout the year from different storage including godowns, houses, shops, grinding mills and local grain market.

Samples were collected in polythene bags. A smaller part of the sample was examined directly under microscope. The mites were extracted by modified Berlese funnel method using electric bulb. The mite extracted in this manner were preserved in 70% alcohol. Temporary microscopic slides were prepared in lactic acid and permanent slides in Hoyer's medium. The mites obtained were processed for identification with the help of literature.

In Table 1 different stored grains and their products and the mesostigmatid mites encountered on them have been presented.

Pearl millet was associated with maximum number (five) of species of mesostigmatid mites. In all there were seven different species of mesostigmatid mites. According to Putatunda (2003) only two species of mesostigmata from the state of Haryana and seventeen (17) from India in store are reported so far. In the present study, seven species are reported out of which six species are being reported for the first time from Haryana state and four species are new reports from store in India. Species from family Laelapidae are predatory in nature and are

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Table 1. Host-mite (Mesostigmata) relationship in the store at Hisar, Haryana

Name of the stored product	Mite family	Mite associated
Animal feed	Laelapidae	<i>Haemolaelaps ovalis</i> Costa (NH) (NI)
	Uropodidae	<i>Leiodinychus parasiticus</i> Choudhary and Mukherjee (NH)
Cotton seed	Uropodidae	<i>Leiodinychus parasiticus</i> (NH)
Debris from shop	Macronyssidae	<i>Ornithonyssus nitedulae</i> Costa (NH) (NI)
	Uropodidae	<i>Leiodinychus parasiticus</i> (NH)
Debris from wheat godown	Uropodidae	<i>Leiodinychus parasiticus</i> (NH)
Debris from flour mill	Macronyssidae	<i>Ornithonyssus nitedulae</i> (NH) (NI)
	Uropodidae	<i>Leiodinychus parasiticus</i> (NH)
Fine wheat flour (maida)	Uropodidae	<i>Leiodinychus parasiticus</i> (NH)
Gram	Phytoseiidae	<i>Phytoseius</i> sp.
	Uropodidae	<i>Leiodinychus parasiticus</i> (NH)
Gram 'Dal'	Phytoseiidae	<i>Phytoseius</i> sp.
Pearl millet	Laelapidae	<i>Androlaelaps thesus</i> (Zumpt) (NI) (NH)
		<i>Haemolaelaps ovalis</i> (NH)
		<i>Hypoaspis aculeifer</i> Canestrini (NH)
		<i>Hypoaspis arida</i> Berlese (NH) (NI)
		<i>Leiodinychus parasiticus</i> (NH)
		<i>Ornithonyssus nitedulae</i> (NI) (NH)
Wheat	Uropodidae	<i>Leiodinychus parasiticus</i> (NH)
	Macronyssidae	<i>Ornithonyssus nitedulae</i> (NI) (NH)
Wheat flour	Uropodidae	<i>Leiodinychus parasiticus</i> (NH)
	Macronyssidae	<i>Ornithonyssus nitedulae</i> (NI) (NH)
	Uropodidae	<i>Leiodinychus parasiticus</i> (NH)

NI : New to India, NH : New to Haryana in store.

beneficial store mites. *Ornithonyssus nitedulae* Costa is a blood feeding mite and harmful to the human beings handling the store. *L. parasiticus* is the most destructive store product mesostigmatid mites. However, *L. parasiticus* Choudhary and Mukherjee, 1964 was originally described as a parasite of poultry from West Bengal and later on observed from poultry, bees, soil, store products from West Bengal, Bihar, H.P., Haryana and Punjab etc.

(Kumar *et al.*, 1994). Probably the mites are in a pest form when moisture (dampness) in the micro environment is high (Putatunda 1996, 2002, 2003; Singh and Putatunda, 2002; Putatunda *et al.*, 1981).

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