GENERAL NOTE

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OCCURRENCE OF A NEMATODE IN THE TROPICAL TASAR SILKWORM, *ANTHERAEA MYLITTA* (SATURNIIDAE)

Additional key words: silk production, parasitization, India.

The infestation of insects by nematode parasitoids is well documented in the literature (Lieutier & Vallet 1982, McCoy & Kaplan 1983, Simmons & Rogers 1990, Simmons et al. 1991, Stock & Camino 1991, Alm et al. 1992, Parker 1993). However, only Poinar (1975) has mentioned the infestation of Indian tropical tasar silkworm, *Antheraea mylitta* (Drury), by a nematode parasitoid.

Fifth instar larvae of the tasar silkworm (Fig. 1) were found to be infested with a nematode parasitoid (family Merminthidae) during the first generation (= rearing season) of the year (i.e., July–August). Structure of the nematode and its infectivity are discussed.

Indian tropical tasar silkworm is one of the most important silk producing insects in the world. It usually is reared on *Terminalia tomentosa* (Wt. & Arn., Combretaceae) and *T. arjuna* (Wt. & Arn.) in the field owing to the wild nature of this moth. During a three-year (1990–1992) survey, we observed nematode infestation in larvae of silkworms in the field. The first rearing season of the year generally commences in July, with the larvae reaching fifth instar in August. The second generation (= rearing season) starts in September, with larvae reaching fifth instar in October. It was discovered that fifth instar larvae of the first generation of each year (1990–1992) were infested with nematode parasitoids, while first, second, third, and fourth instar larvae do not show any symptoms of infestation. First generation infestation appears to be related to the high percent relative humidity and high temperature and associated heavy rainfall during July and August. No nematode infestation was detected in the second generation larvae reared during September-October, a period when temperature, rainfall, and percent relative humidity are comparatively low.

Numerous thin, threadlike nematodes were observed inside mature fifth instar larvae after dissecting their abdomens (Fig. 2). The nematodes were whitish, with smooth skin, pointed at both ends, with an unsegmented body (Fig. 3). The length of adult nematodes ranged from 166 to 294 mm. Most of the fat body mass and silk glands of the host were utilized by the nematodes. Morphometric measurements of the nematodes (n = 100) and percentage larval mortality are presented in Table 1. Larval mortality was determined from 100 individuals x 10 replicates (1000 larvae) in each year.

Parasitism was determined based on symptoms shown by the infested fifth instar larvae. Infested silkworms gradually lose their ability to grip the host plant; ultimately, the larvae fall from the plant. The body of the infested silkworm becomes shortened from the shrinkage of the outer body wall as the parasitoid utilizes the tissue inside the body of the host. Finally, the infested larva dies, and the threadlike adult nematodes exit the host body through its anal opening. Infested silkworms were unable to spin the silk necessary for cocoon production. Only the larvae of the silkworm were found to be infested by nematodes. In contrast, pupal and adult stages of other insects are known to be nematode hosts (Anderson & Laumond 1992, Mannion & Jansson 1992, Poinar 1992). These preliminary data are being augmented by further studies regarding the taxonomy of the nematode.

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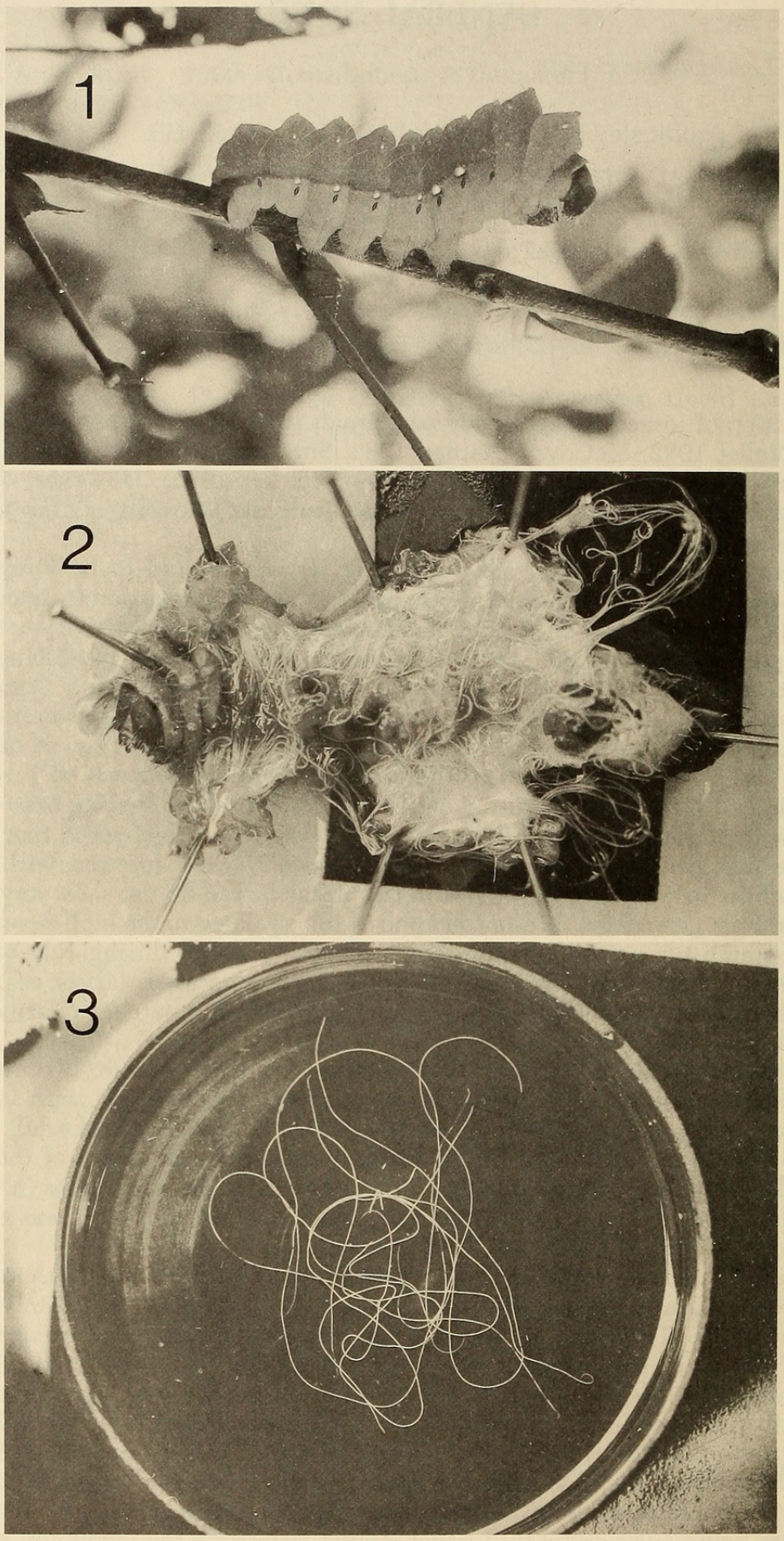

FIGS. 1–3. Larvae of *Antheraea mylitta* and nematode parasitoids. **1**, Healthy fifth instar larva; **2**, Infested larva dissected; **3**, Nematode parasitoids.

TABLE 1. Morphometric measurements of adult nematodes (n = 100) and larval mortality during 5th larval instar of *A. mylitta* for three years, 1990–92.

Morphometry (mm)		% larval mortality		
Length (mean ± SE)	Breadth (mean ± SE)	1990	1991	1992
238.90 ±9.50	0.223 ±0.006	1.50 ±0.34	2.20 ±0.59	1.70 ±0.56

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