

**STUDIES ON NEMATODE, *SPHAERULARIABOMBI* DUFOUR IN
BUMBLE BEE, *BOMBUSHAEMORRHODALIS* SMITH IN INDIA**

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Abstract: Bumble bees are some of the most important insect pollinators. However, knowledge on parasites associated to bumble bees in India is very limited. This study reports the first isolation of a sphaerularid nematode parasitizing queens of the native bumble bee, *Bombus haemorrhoidalis* Smith in Himachal Pradesh. Measurements and morphological characters of eggs, juveniles, and adults strongly suggests that the species is *Sphaerulariabombi*, a parasite that affects the reproduction and foraging behavior of the host. Nematodes are endoparasites of bumble bees which lay eggs inside the hind gut and juveniles develops inside the body thus cause death of the infected queens. Present studies were conducted during 2011-2014 to know the role of nematode, *Sphaerulariabombi* in bumble bee rearing. Seasonal incidences revealed higher infestation/infection during February-March with 10-12% infestation in bumble bee queens. Infested queens mostly do not brood but died after 10-16 days of captivity. Thus, *S. bombi* infestation reduces the successful establishment rate of bumble bee colonies. It is for the first time that the nematode *Sphaerulariabombi* was reported in bumble bees from Himachal Pradesh in India.

Keywords: Bumble bees, *Sphaerulariabombi*, Morphology, Seasonal incidence

INTRODUCTION

Bumble bees belongs to order hymenoptera which is commercially reared for the pollination of different crops under protected conditions globally. Rearing methods have been developed in India [1-2, 3] but its rearing success rate is affected by different pests and diseases. Very little efforts have been made earlier in our country to study these pests and diseases [4]. Among different pests/ diseases of bumble bees, *Sphaerulariabombi* is one of the oldest known insect parasitic nematode as noticed in 1742 [5]. It was observed by various workers [6, 7] that during hibernation, the queens were infected by the nematode *S. bombi*.

Vander and Laan, observed queens of *Bombus terrestris*, *B. hypnorum*, *B. lucorum*, *B. hortorum*, *B. lapidarius* and *Psithyrus* sp., were infected with the parasitic nematode, *Sphaerulariabombi*. These were collected and studied in the Netherlands from April to September, 1971. In June, the infected queens gathered in a special wooded area which partially overlapped with a normal hibernation site. These queens were observed digging in