

SHORT COMMUNICATION**FIRST REPORT OF OCCURRENCE OF *BRAHMINA MYSOREENSIS* FREY
(COLEOPTERA : SCARABAEIDAE) IN SUGARCANE****B. Singaravelu*, P. Mahesh, J. Srikanth and R. Nirmala****Abstract**

The first record of occurrence of the white grub *Brahmina mysoreensis* Frey (Coleoptera: Scarabaeidae) on sugarcane in India and second record of its occurrence in Tamil Nadu state, are reported in this communication. The pest was observed damaging the root system of the crop causing typical withering and drying symptoms in five and seven month old sugarcane crop (cv. Co 86032) in Villupuram district of Tamil Nadu in the last week of October 2015. The larvae maintained in the laboratory on sugarcane roots pupated and adults emerged from them. The possibility of the white grub assuming major pest status in relation to the predominant *Holotrichiaserrata* F. (Coleoptera: Scarabaeidae) and groundnut cultivated in the area is discussed.

Key words: Sugarcane, white grub, *Brahmina mysoreensis*, new record

White grubs are soil inhabiting and root feeding immature stages of Scarabaeidae whose adults too are often phytophagous. With over 30,000 species, Scarabaeidae is the second largest family (Mittal 2000) and about 300 species of white grub are recorded in India (Bhawane et al. 2011). The damage caused by scarab larvae had been reported to reduce crop yields by about 40-80% (Prasad and Thakur 1959; Raodeo 1974).

Sugarcane crop system is known to host more than 200 species of insect pests in India (David et al. 1986; Mukunthan and Nirmala 2002), of which white grubs stand out as one of the most important pests with a potential to cause 80-100% damage. Over one dozen species of white grubs belonging to the sub-families Melolonthinae, Dynastinae and Rutelinae have been recorded damaging sugarcane in the larval and/or adult stages in India. While the damage caused by the predominant *Holotrichia serrata* F. in the tropics and *Holotrichia*

consanguinea Blanchard in the subtropics is clearly documented (David and Ananthanaryana 1986), the sporadic occurrence of other species in small pockets in far-flung areas often remains unreported. In what appears to represent an instance of such rare appearance of a pest, we report in this communication the first record of occurrence of a less common white grub species in sugarcane from Tamil Nadu state, India.

Following reports of crop drying, apparently due to white grub, in the cane area of M/s Rajshree Sugars and Chemicals Ltd., Villupuram district, Tamil Nadu, sugarcane farms under the jurisdiction of the factory were inspected in the last week of October 2015. Affected ratoon crop of five and seven months age (cv Co 86032), respectively in Anniyur and Sitheri villages of Surapattu Division was examined and observations on damage pattern were recorded. Grubs noticed in the root zone were collected, brought to the laboratory and reared on sugarcane

roots until pupation and adult emergence. Observations were recorded on the larval development and duration, pupal period and adult longevity. The grubs collected and adults emerged in the laboratory showed morphological differences from those of the common *H. serrata*. The identity of the species was subsequently established as *Brahmina mysorensis* Frey (Coleoptera: Scarabaeidae) by the white grub Taxonomist at the Department of Entomology, University of Agricultural Sciences, GKVK, Bangalore, India.

In the two fields that showed visible symptoms of drying of plants, withering of clumps and stunted canes, infestation was restricted to a few patches (Fig. 1). When infested plants or clumps were pulled out with minimum effort, grubs of *B. mysorensis* ranging 8-23 per clump were found feeding in the root zone of the uprooted plants. Observations of infested canes and randomly selected surrounding canes indicated that the grubs fed on roots, rootlets and root hairs (Fig. 2). However, scooping damage on underground stalk, generally observed in the case



Fig. 1. Drying symptoms in sugarcane caused by the white grub *Brahmina mysorensis*



Fig. 2. Root damage in sugarcane due to the white grub *Brahmina mysorensis*

of the more serious *H. serrata*, was not observed with this grub.

A literature search indicated that the pest *B. mysorensis* has not been reported on sugarcane in the country and hence the present report of its occurrence constitutes a new record for the crop. *Brahmina mysorensis* is widely distributed in peninsular India, including Karnataka, Tamil Nadu, Andhra Pradesh and Kerala (Anitha et al. 2006; Chandra 2009; Anonymous 2016). In Tamil Nadu, it was reported from Nilgiri Hills (Chandra 2009) alone and the present report also appears to be a second record of its occurrence in the state. However, the reports of its occurrence in parts of southern Karnataka and southern districts of Andhra Pradesh (Anitha et al. 2006; Anonymous 2016) suggest that it may have moved to the present site, i.e. Villupuram from one of these two regions due to geographical proximity.

Grubs (Fig. 3a) reared in the laboratory on sugarcane root bits for confirming the identity started pupating

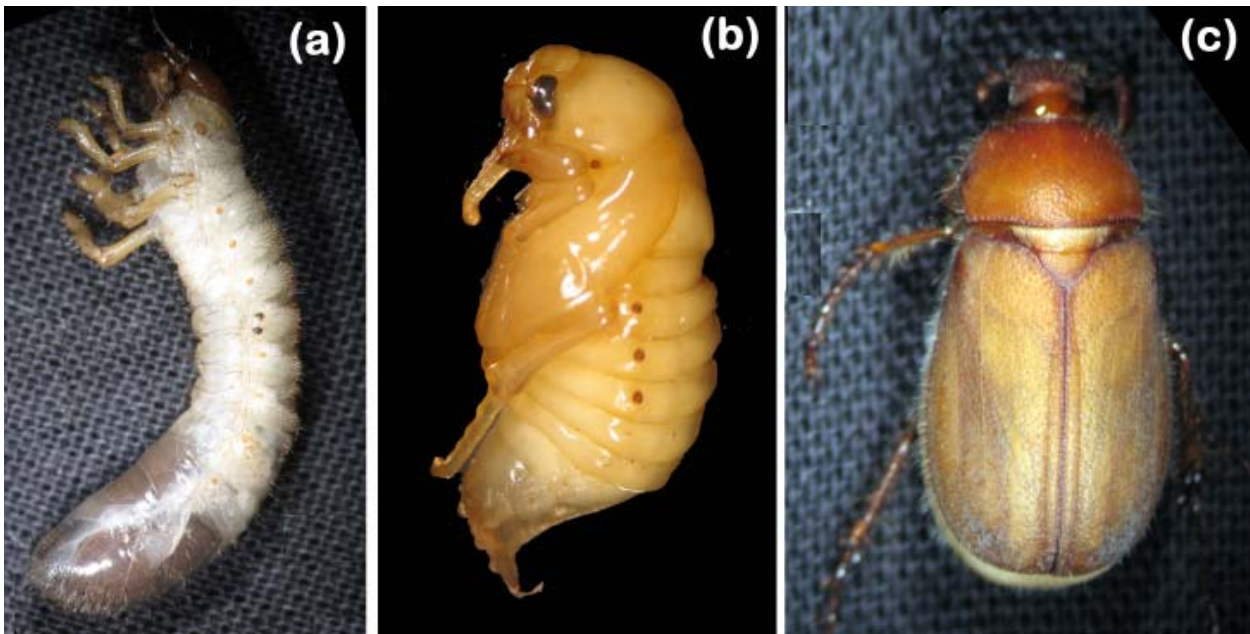


Fig. 3. Life stages of the white grub *Brahmina mysoreensis*: (a) grown-up larva (b) pupa (c) adult

(Fig. 3b) during the third week of December 2015 with no visible signs of molting and adults emerged (Fig. 3c) during the first week of January 2016. These observations indicated that the grubs collected were apparently in third instar whose duration would be more than 50 days. Although a short pupal period of 15-20 days was noticed in the laboratory, these life-history observations need confirmatory studies since the larvae were collected in the middle of the life cycle. *Holotrichia serrata* that occurs regularly in sugarcane generally pupates by the last week of September. The occurrence of *B. mysoreensis* grubs in October and pupation in December indicated two possibilities: (i) the pest seems to occur sequentially with *H. serrata*, with some overlap, to avoid competitive interaction and yet exploit the unlimited root biomass offered by the long-duration crop; (ii) it may be occurring independent of *H. serrata* late in the season, the delay caused by delayed rains and belated adult emergence.

Brahmina mysoreensis has been documented as a pest of groundnut and millets in the larval stage and

neem, *ber* (Indian plum) and tamarind in the adult stage (Anonymous 2016); adults were collected from *Acacia* in groundnut crop system (Anitha et al. 2006). Despite the lack of reports of major outbreaks or serious crop losses, which suggested that it is an occasional pest in these larval hosts, *B. mysoreensis* is likely to exploit the year-round availability of biomass provided by sugarcane and assume serious pest status. Groundnut cultivated in as much area as sugarcane in Villupuram district (Anonymous 2011) may serve as a supplementary food resource, though there are no reports of serious damage in both crops due to the white grub hitherto. *Brahmina coriacea* (Hope), another species which is a serious pest of potato and other crops in the northern parts of the country, has a longer larval period leading to its year-round presence in the field (Gupta and Gavkare 2014). It would be interesting to examine such possibility of long life-cycle in *B. mysoreensis*, particularly in the long duration sugarcane crop. Thus, there is a need to monitor the biology and damage pattern of *B. mysoreensis* vis-à-vis other

white grubs in sugarcane and groundnut cultivated in the present study site.

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