Figure 2. Trap for male gall midges capture.

perforations, on the top of which a funnel was placed in the inverted position and a glass jar was placed covering the stem of funnel as seen in figure 2. The glass tube containing females was kept suspended inside the pot. The trap was set in the rice field above water level. With this, as many as fifty live male gall midges were trapped per night during October. The live male gall midges thus trapped could be used for maintaining culture of the pest under greenhouse conditions.

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INFLUENCE OF NECTAR ON THE FECUNDITY, LONGEVITY AND SEX-RATIO OF *BRACON BREVICORNIS* WESM, AN IMPORTANT PARASITE OF *OPISINA ARENOSELLA* WALK, THE BLACKHEADED CATERPILLAR OF COCONUT

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MANY adult parasites utilize nectar and pollen as source of nourishment and moisture[1-3]. The need for supplementary food for natural enemies was emphasised by Rao[4]. In Russia, increased parasitism has been obtained by growing along with crops suitable plants whose flowers are a source of nectar for parasites used in the biological control of pests[5]. Therefore, an attempt was made to identify such plants at the Plantation Crops Research Station, Mahuva (Gujarat). The results obtained are presented in this note.

The flowering plants grown in the vicinity of the coconut plantation were inspected and the relative abundance of insects visiting flowers was recorded. Among the plants inspected, flowers of a perennial shrub, *Justicia jendurosa* were found to attract the largest number of insects. Closer observation revealed the presence of 5 species of entomophagous insects feeding on the nectar of these flowers, which were later found to be parasitic on *O. arenosella*. These species were identified as *Bracon brevicornis* Wesm. *Parasierola nephantidis* Mues. *Brachymeria nephantidis* Gahan., *B. excarinata* Gahan, *Xanthopimpla punctata* Fab. Apart from these, one unidentified eulophid and a braconid, *Apanteles* sp, common giant black formicid ants and honey bees were also seen feeding on the nectar. The last two were seen in great abundance. The flowers contained so much of nectar that children were often seen sucking the flowers. The nectar of these flowers was fed to laboratory bred females of *B. brevicornis* and data on their fecundity, longevity and sex-ratio were recorded. The results obtained are summarised in table 1.

The results presented in table 1 show that the females when fed on nectar not only lived longer but produced significantly higher number of cocoons than those fed on diluted honey. Females with no food but provided with host larvae, *Corcyra cephalonica* alone produced on an average 44 cocoons and lived for an average life span of 21 days, suggesting that the female parasites do feed on the body fluid of host and reproduce. But it is quite evident from these results

Table 1 *Fecundity, longevity and sex ratio of B. brevicornis on different food sources**

Food Source	Fecundity (No. of cocoons)		Longevity (in days)		Sex ratio	
	Range	Average	Range	Average	Male	Female
Nectar	115–277	148.3	40–51	45.9	53 : 47	
Diluted honey	28–105	68.7	21–37	30.8	53 : 47	
No food but larvae of *Corcyra cephalonica* were provided	12–81	44.0	14–27	20.9	57 : 47	
S. Em.	0.03		0 09		—	
C. D. at 0 05	0.16		0.27		—	
C. V. %	26.63		7.11		—	

* : Based on 18 females studied.

that for the optimum egg production, additional feeding is essential. Sex ratio of the parasite was not affected when fed on nectar. Thus, it would be worth growing *Justicia jendurosa* in the vicinity of coconut orchards and studying whether supplimental feeding increases natural control of *O. arenosella.*

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ONTOGENY AND THE STRUCTURE OF THE MATURE SEED COAT OF *ENTADA SCANDENS* BENTH

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THE structure of any seed coat could clearly be understood if studied developmentally[1]. The variation and the constancy of the seed coat structure are helpful in taxonomic studies[2] and are of great value in determining taxonomic relationships[3]. The present study, therefore, deals with the ontogeny and the structure of the mature seed coat of *Entada scandens* Benth.

Materials collected from Yercaud, Kodaikanal and Kolli hills were fixed in FAA. In addition to microtome sections, free hand paradermal and transverse sections also were prepared. Following Schult's method[4] mature seed coat bits were macerated. The micropreparations, stained in aqueous safranin, were mounted in glycerine or glycerine-jelly[4]. To support the observations, camera lucida drawings and photomicrographs were prepared. All measurements were on an average of 30 readings.

In trans-sectional view, the seed coat exhibits: (a) thick cuticle ($\pm 3\mu$ thick), (b) a palisade layer composed of compactly arranged macrosclereids ($17.76\,\mu \times 1.2\,\mu$), (c) a distinct layer of osteosclereids with intercellular spaces and (d) several layers (80–100) of thick-walled parenchyma cells (figures 1–3). This inner parenchymatous zone is composed of three regions: (a) the outer part (about 15 layers) made up of compactly placed and tangentially extended cells (figure 4), (b) the middle part (about 34–40 layers) of armed parenchyma having large inter-cellular spaces and (c) the inner part made up of compactly arranged thick walled parenchyma cells. Of these three parts, the outer and the inner parts exhibit comparatively smaller cells, while the cells of the middle part show larger cells with arms and conspicuous intercellular spaces (figure 5). Generally, all the parenchyma cells possess certain coloured and granular substances in the protoplast.

It is interesting to note the ontogeny of the seed coat. The outer epidermis of the young seed coat