Table 1 *Consumption of different plants by Biston regalis.*

Host Plant	Family	Consumption (mm^2)
Fruit trees		
Apple (*Pyrus malus*)	Rosaceae	5.87
Pear (*P. communis*)	–	93.33 a
Plum (*Prunus domestica*)	–	19.50 c
Quince (*Cydonia oblonga*)	–	29.79 b
Guava (*Psidium guajava*)	Myrtaceae	31.83 b
Pulses		
Beans (*Phaseolus vulgaris*)	Papilionaceae	0.00
Mash (*P. mungo*)	–	164.50 b
Soybean (*Glycine max*)	–	239.55 a
Cowpeas (*Vigna unguiculata*)	–	34.99 c

P = 0.05

as consumption was based on leaf area eaten and not on the weight. All these plants can serve as potential host of the pest.

7 October 1985

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VARIATION IN THE SACCHARIDES IN THE HAEMOLYMPH OF *CHILO PARTELLUS* (LEPIDOPTERA: PYRALIDAE) DURING GROWTH AND DEVELOPMENT

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THE biochemical changes associated with metamorphosis in Holometabolous insects have earlier been reviewed[1,2]. These studies suggest that carbohydrates and lipids are the primary energy reserves for these events. The haemolymph sugars differ greatly in different insects. Various workers have given comprehensive details of the carbohydrates and their metabolism in insects[3,4]. In view of the fact that the carbohydrate content varies during the development of an insect a study was initiated to note the day-to-day variations in the haemolymph glucose and Trehalose during the development in *Chilo partellus.*

The stem borer *Chilo partellus* is the most destructive pest of *Sorghum vulgare* Pers (jowar). For experimental purpose the above insect was reared in the laboratory on artificial diet[5] at a temperature of 27 ± 1°C and rh 65 ± 5%. Haemolymph from the larvae, pupae and adult was collected using the rapid centrifugation method[6]. To inhibit the tyrosinase activity of the haemolymph, phenyl-thio-urea was added to it. The haemolymph was centrifuged at 2500 rpm to remove haemocytes. The glucose content of the haemolymph after deproteinization was determined by anthrone reagent[7] using d-glucose as standard and expressed in g/100 ml of haemolymph.

Trehalose in the haemolymph extracts was separated by thin layer chromatography. The haemolymph (20 μl) was applied on the chromoplates which were developed using the solvent system *n*-butanol-acetic acid-water (4:1:1 v/v). Trehalose was detected with an alkaline solution of silver-nitrate[8] comparing R_f values of sugar spots with those of trehalose standard.

A gradual rise in the concentration of haemolymph glucose from 4.4 ± 0.1 g/100 ml in the first instar larvae to 4.6 ± 0.04 g/100 ml in the second instar larvae was observed. The glucose concentration in the haemolymph recorded a further increase to 5.2 ± 0.01 g/100 ml in the third instar larvae. The increase in the glucose level was simultaneous with increase in the body weight of the larvae. On the 12th day of the life cycle *i.e.* the last day of the third instar larvae the glucose concentration in the haemolymph reached a value of 5.7 ± 0.06 g/100 ml. There was a rapid increase in the haemolymph glucose level in the fourth instar, the glucose level increased by 3 g/100 ml reaching a level of 8.6 ± 0.02 g/100 ml on the last day of the fourth instar *i.e.* on the 20th day of the life cycle.

A further increase was recorded from the early fifth instar larva to the end of this larval stage. The increase was from 9.2 ± 0.08 g/100 ml to 14.3 ± 0.03 g/100 ml.

In the pupal period a decrease was however noticed throughout, this being the non-feeding phase of the life cycle. The recorded values are 14.8 ± 0.06 g/100 ml on the first day of the pupae and reaching a value of 12.1 ± 0.07 g/100 ml on the 7th day of the pupal life.

The adult life cycle in the lepidopterans is very short. The glucose content recorded a drastic decrease from the day of emergence until the death of the moth. On the day of emergence, in the male moth the glucose concentration was 12.4 ± 0.05 g/100 ml and it decreased to 9.4 ± 0.01 g/100 ml on the 5th day. In the female moth the decrease in haemolymph glucose was more from 12.6 ± 0.01 g/100 ml to 9.2 ± 0.06 g/100 ml (figure 1).

The intensity of trehalose spot on the chromoplate showed a gradual increase throughout the larvel period reaching a maximum in the late last instar larvae. The intensity of trehalose showed a gradual decrease during pupal and adult stage.

The level of glucose in *Chilo partellus* shows a gradual increase during the feeding period, that is the larval period, with a temporary decline at each moult. Similar observations were made by Pant and Morris[9], and Pawar and Ramakrishna[10].

The carbohydrate content decreases gradually during pupation and this trend continues in the adult stage. Similar studies conducted by Tate and Wimer[11] during the metamorphosis of *Phormia regina* also showed a decline in the glycogen content during adult development.

Day-to-day variations were observed in the carbohydrate content of *C. partellus*. It is clear that during metamorphosis *C. partellus* rely on carbohydrates sequestered during the larval periods as an energy source and as substrates for the synthesis of chitin and other cellular components.

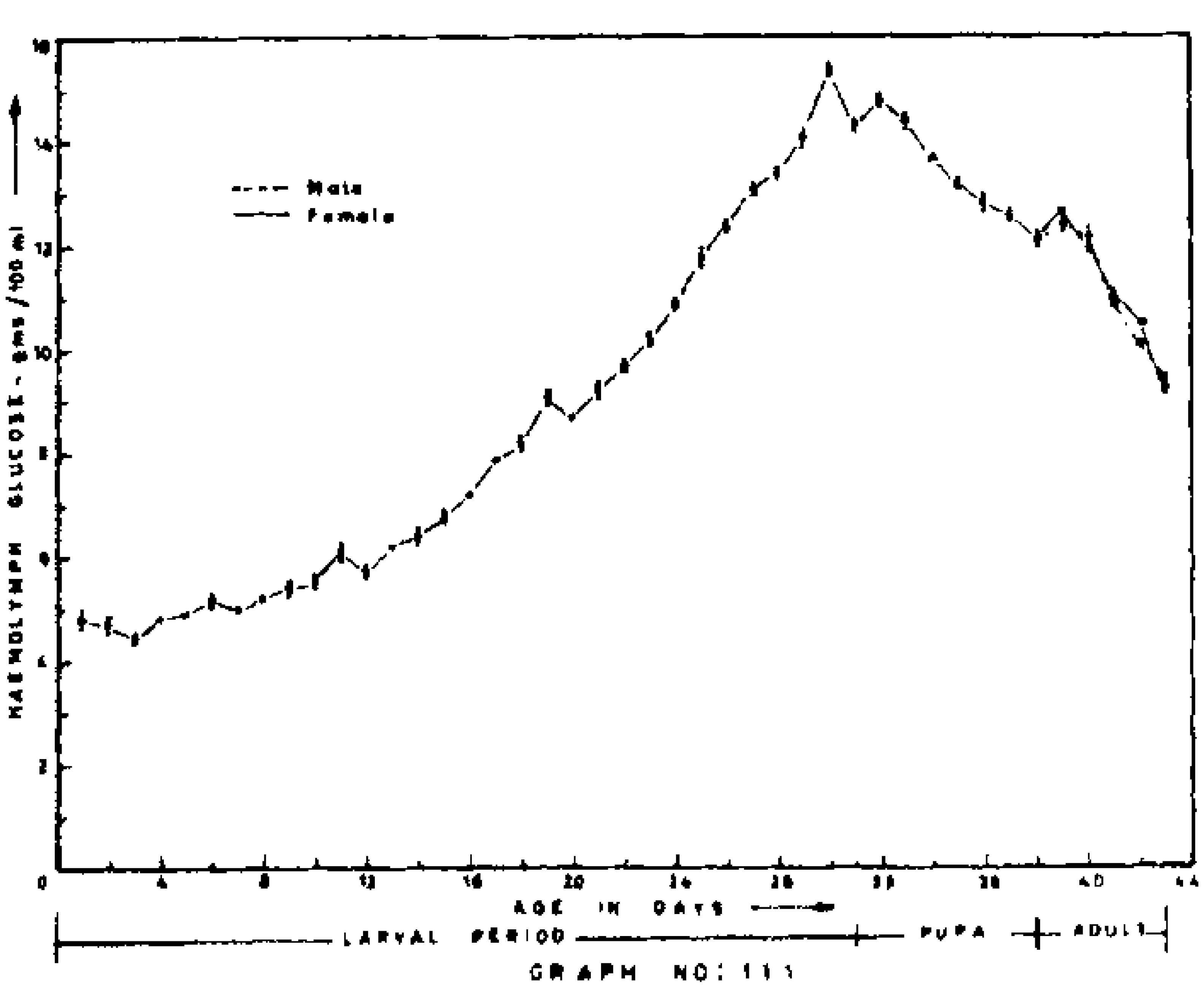

Figure 1. Quantitative changes in the glucose level of the haemolymph during the development of *Chilo partellus*.

Two of the authors (SR and AK) are grateful to UGC for financial assistance.

28 October 1985; Revised 6 December 1985

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FIRST RECORD OF FUSARIUM SEMITECTUM BERK AND RAV AS AN ENTOMOPHAGOUS FUNGUS

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WHILE making a survey for the entomophagous fungi associated with crop pests in and around Coimbatore, an epizootic infection of *Myzus persicae* Sulzer and *Lipaphis erysimi* Kaltenbach appeared on cauliflower, cabbage and knol khol plots in the Tamil Nadu Agricultural University Campus. Further observations revealed that this fungal infection also occurred on *M. persicae* infesting chilli and other cole crops grown in pots under glass-house conditions.

The infected and dead aphids were collected in sterile tubes and the fungal pathogens associated with