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FOOD SELECTION BEHAVIOUR OF *BELLAMAYA BENGALENSIS* IN THE LABORATORY

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Abstract.- In the present investigation an attempt has been made to observe the food selection behavour/response of *Bellamaya bengalensis* in the laboratory. Discs of semisynthetic food and fresh leaves of Spinach, Lettuce, Mulbury, Acacia and Neem were provided as food to 24 hour starved *B. bengalensis*. Observations continued upto 10 hours, revealed that fresh spinach was the only food selected by 55.0±2.5% of the total snails. Lettuce was given second preference by the snails. It was noted down that jucy, succulent and easily palatable food items were given preference. However, in the absence of preferred food other materials can be utilized as food.

Key Words: *Bellamaya bengalensis*, food selection behaviour.

INTRODUCTION

Bellamaya bengalensis, a freshwater prosobranch snail commonly found in the water bodies of Lahore and adjoining areas was the subject of studies on food selection behaviour in the laboratory. The existing information on this aspect of *B. bengalensis* has been provided by Sewell (1921) and Tanveer *et al.* (1989b). They reported the herbivoure and very occasionally carnivore nature of this snail. Since *B. bengalensis* has been suggested as biological control agent of the other medically important snail species (Tanveer and Khan, 1990). Therefore a study of its food selection behaviour in the laboratory will be quite beneficial and helpful in its mass production before its implication as biological control agent.

MATERIALS AND METHODS

To study the food selection behaviour of *B. bengalensis* in laboratory, 16 weeks old snails, with a mean weight 0.60±0.12 gm and shell length 11.45±0.27 mm were used. In all six foods were used i.e., fresh leaves of Spinach, Lettuce, Mulbury, Acacia and Discs of semi-synthetic food (for proximate analysis of semi-synthetic food see Tanveer *et al.*, 1989a). The last mentioned food was made into a paste with agar spread thinly over a filter paper and dried. The area of each leave and disc was kept constant into a more or less circular form. The experiment was run in big earthern pots of area 2173.78 cm with 6 litre water capacity and 15 cm H_2O depth. Room temperature was kept at 25.0±1.0°C and

no extra aeration was provided. 24 hour starved, 40 *B. bengalensis* were used and the experiment was run in triplicate. THe snails were placed in one side of the pot and the food items were on the opposide side of the pot. Each food was tried singly. The observations were taken every hour for a total of 10 hour. The number of snails accumulated at each food were recorded and presented in percentage of the total snails±S.D.

RESULTS

As a result of above observations it was found that after 7 hours (the time where maximum attractance or accumulation of snails was noted) 55.0±2.5% of the total snails were accumulated on spinach food, 21.66±1.44% on lettuce, 16.66±1.44% at semi-synthetic food, 4.16±2.5% at Mulbury, 1.66±1.44% at Acacia and no snail was found at Neem. The observations were continued for 10 hours but the percentage remained the same as it was at 7 hours (see the figure 1).

DISCUSSION

Observations carried out in the laboratory with fresh leaves of Spinach, Mulbury, Acacia, Neem and Discs of semi-synthetic food showed the herbivoure nature of *B. bengalensis* because 83.44% of the total snails preferred soft and delicate leaves and only 16.66% snails were accumulated at semi-synthetic food. Our findings are in line with those of Sewell (1921) and Tanveer *et al.* (1989b).

The results of another series of experiment carried out by Tanveer (1989) revealed that although semi-synthetic food gave best results as for as the increase in weight, shell lenght and reproduction was concerned but in the laboratory they did not prefer it in the presence of other natural foods like Spinach and Lettuce. It was also an important observation that when snails were provided with a complete Spinach or Lettuce leaf along with the same kind of leaves in small pieces, they tried to congregate (preferred) on the leaves in small pieces. Probably the chemicals released from the cut surfaces attracted the snails or it was part of their innate feeding behaviour.

During these observations it was also found that snails did not accumulate (or prefer) on the Neem leaves, but in another series of experiments in the laboratory, *B. bengalensis* survived quite nicely when Neem leaves were the only source of food available, showing their nutritional adequacy. However, when *B. bengalensis* were provided with a chance to select their food they preferred, juicy, succulent and easily palatable food. From these experiments, it appears that *B. bengalnesis* exercise a strong selection as for as the food is concerned but if the preferred food is not available then other materials can be used as food.

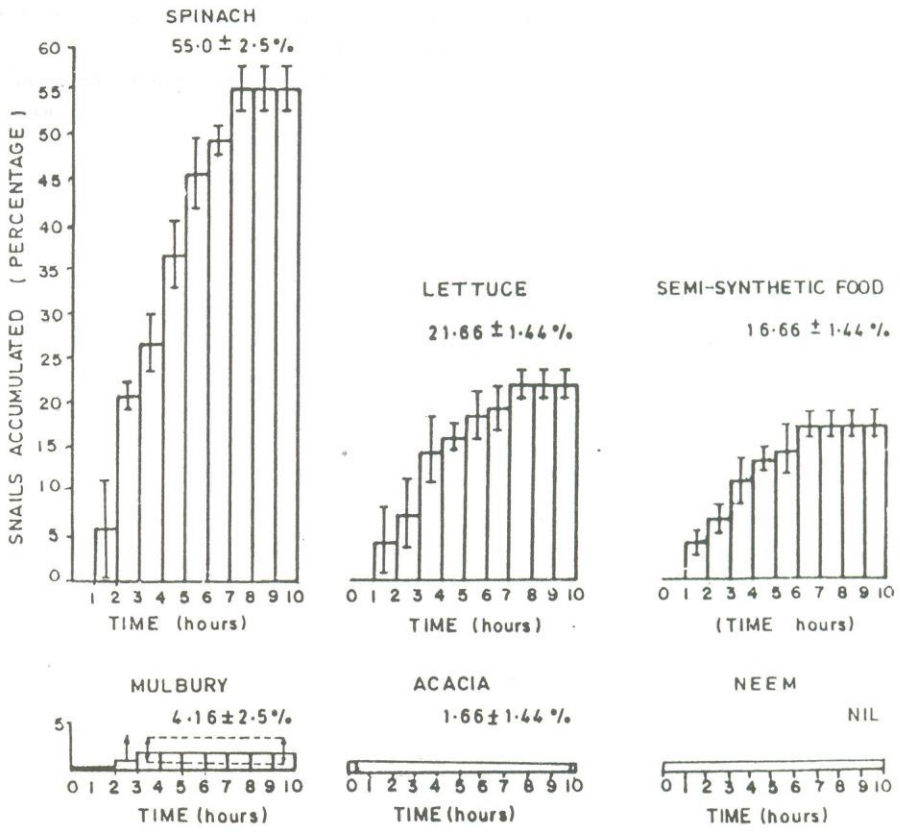

Fig. 1. Multiple food choice test for *Bellamaya bengalensis* in the laboratory. Values given are mean ± S.D. of 2 replicate of 40 snails each for every food.

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