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The Asian Journal of Animal Science (December, 2010), Vol. 5 Issue 2 : 217-218 | RESEARCH ARTICLE

Feeding deterrent activity of plant hormone on *Diacrasia obliqua*

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Received : Oct., 2010; Accepted : Dec., 2010

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ABSTRACT

The present paper reports the feeding deterrent activity of *Euphorbia hirta* against *Diacrasia obliqua,* a serious pest of soybean. The paper reports the consumption and utilization of soybean leaves which was found to be maximum utilized by the 5th instar larvae of *Diacrasia obliqua*. It consumed within 5 days, maximum (57.72%) leaves and showed maximum body weight gain.

Key words : *Dicrasia obliqua*, *Euphorbia hirta*, Feeding deterrent, Plant hormones

Feeding deterrent activities have been observed by application of the plant hormone on the leaves of soybean and *Bhindi* in different concentrations. The larvae were released on the treated leaves and the total consumption of leaf area in three replicates was observed by leaf disc method. An average consumption by one pair of larvae was also calculated and the result obtained after 24 hours, 72 hours and 96 hours duration were recorded separately which have been tabulated in Table 1.

MATERIALS AND METHODS

The extract of *Euphorbia hirta* at 0.2 ml solution when applied topically showed certain ovarian deformities in *Diacrasia obliqua*. A survey has been conducted in order to collect indigenous plants from the surrounding area of Vidisha, (M.P.) during different seasons of the year. The whole plant of *Euphorbia hirta* after proper identification brought to the laboratory, washed thoroughly and dried in a shade at room temperature (30±2 ^{0}C) for more than a month. The thoroughly air dried plants were grounded to powder about 40-60 mesh size weighed and stored in plastic bottles for future use.

The known amount of powdered material (120-140g) of the plants was extracted successively with three solvents starting with petroleum ether (60-80^{0}C) acetone and methanol in an order of increating polarity for 60-70 hours in Soxhlet apparatus. The crude extract thus obtained was filtered using Whatman filter paper no. 1 and the solvents was evaporated to dryness under reduce pressure in a vacuum evaporation at 40^{0}C. The amount of the crude extracts thus obtained was weighed to calculate the percentage yield of the plant extracts in each of the solvent. All the extracts thus obtained were quantified and stored at 10^{0}C.

Isolation, purification and characteristic of botanical derivatives:

The cured extracts *viz.,* petroleum ether, acetone and methanol obtained from plant was purified by chromatography method (TLC and column)

Column chromatography:

The biological active compounds was separated through column chromatography. The glass column of size (80 x 4cm) was throughly washed with detergent and water and kept drying in an oven. The packing material (silica gel grade A 50-120mesh size) was slurried with petroleum ether and poured in a thin stream into the column tube. A homologous packing of the silica gel was done by gentle agitation while there was a solvent flow through the column. The column was allowed to run dry during separation.

Application of the crude extract as concentrated solution was done with a pipette placed against the column just above the cotton plug.

RESULTS AND DISCUSSION

Table 1 reports the consumption and utilization of soybean leaf by different instars of *Diacrisia obliqua*. The table shows the average weight of one larva and duration of feeding period along with fresh weight of the leaf consumed by the average larva. Weight multiplied by duration of feeding gives the consumption index (CI). It was noted that 5th instar larva fed upon the leaf for five days period. The second and fourth instar larva fed upon the leaves for sixth days whereas the maximum feeding was observed in case of third instar larva (7 days). The

Dubey, Dinesh, Sahai, Neera and Saxena, R.C. (2010). Feeding deterrent activity of plant hormone on *Diacrasia obliqua*. *Asian J. Animal Sci.*, **5**(2): 217-218