Indian Journal of Entomology, **81**(1): 163-165 (2019) DoI No.: 10.5958/0974-8172.2019.00009.9

BALANITES AEGYPTIACA FRUIT EXTRACT FOR MANAGING SUGARCANE WOOLLY APHID

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ABSTRACT

Sugarcane woolly aphid (*Ceratovacuna lanigera* Zehntner) is the most important pest of sugarcane, and many insecticides are employed for controlling this. This study is an attempt to find an ecofriendly alternative with sprays using the aqueous extract in cow urine and distilled water from the fruits of *Balanites aegyptiaca*. Results revealed that all the concentrations i.e., 5, 10, 15, 20, 25 and 30% gave promising results with 100% mortality. But as the concentration increased yellowing of sugarcane leaves was observed, suggesting the use of extracts in lower concentrations.

Key words: sugarcane woolly aphid, *Balanites aegyptiaca*, fruit extract, cow urine, distilled water, concentrations, yellowing of leaves

Sugarcane is one of the important crops of Maharashtra and it suffers great loss in yield due to the attack of various sucking insect pests. Sugarcane woolly aphid (*Ceratovacuna lanigera* Zehntner) is the most important. In Maharashtra, it was observed first on sugarcane in district Sangli (Joshi and Viraktamath, 2004), and since no attention was given it became serious. The pest has lifespan of about 30 days with active nymphal stage and with 9- 12 generations/ year (Patil, 2005). Many insecticides are employed for controlling this pest but these insecticides are harmful necessitating alternative. In this study, *Balanites aegyptiaca* fruit extract has been evaluated for its insecticidal activity.

MATERIALS AND METHODS

Various concentrations of the extract were prepared for spraying in field conditions, with the the ripened fruits of *B. aegyptiaca* collected from Arts, Science and Commerce College, Satral campus. The aqueous extract was prepared from these fruits as per the method given by Elamin et al. (2013) with some modifications. Ripened fruits were cleaned with the help of tap water to remove the dirt. Further they were crushed into small pieces and powdered. 250g of powder was taken to which 500 ml of cow urine and 1200 ml of distilled water was added. Final volume was made to 1700 ml was transferred to 2 l capacity container, with entire material allowed to soak for 5 days. After this it was boiled in a vessel until it reduces to half, filtered with muslin cloth and filtrate was used to prepare various concentrations, for evaluating the inhibitory activity of aphids. White woolly aphid pest was collected from the fields of local farmers and was taken along with infested leaves to the test field for developing on previously grown healthy sugarcane plants. After the development of aphid on sugarcane, the plants were subjected for the treatment with the prepared extracts at 5%, 10%, 15%, 20%, 25% and 30% concentrations as sprays.

After selecting the infested leaf, 5 cm^2 areas were marked with marker pen, with number of woolly aphid in that area noted. Care was taken not to disturb the aphids as they may move out from the selected area, with the concentrations of sprays and replications duly coded. Spraying was done with the help of a hand sprayer on the entire leaf. Plant sprayed with water was treated as control. These leaves were observed after 3 and 7 days and numbers of aphids were counted with photographs taken for comparison.

RESULTS AND DISCUSSION

The results revealed that all the treatments of *Balanites* extract prepared in cow urine and distilled water were effective and caused mortality of aphids, with many aphids dying after died after 3 days of post-treatment with 100% mortality. Maximum toxicity was recorded in 30% aqueous extract. The colour of treated leaf changed to pale yellow, with colour on day 3 the

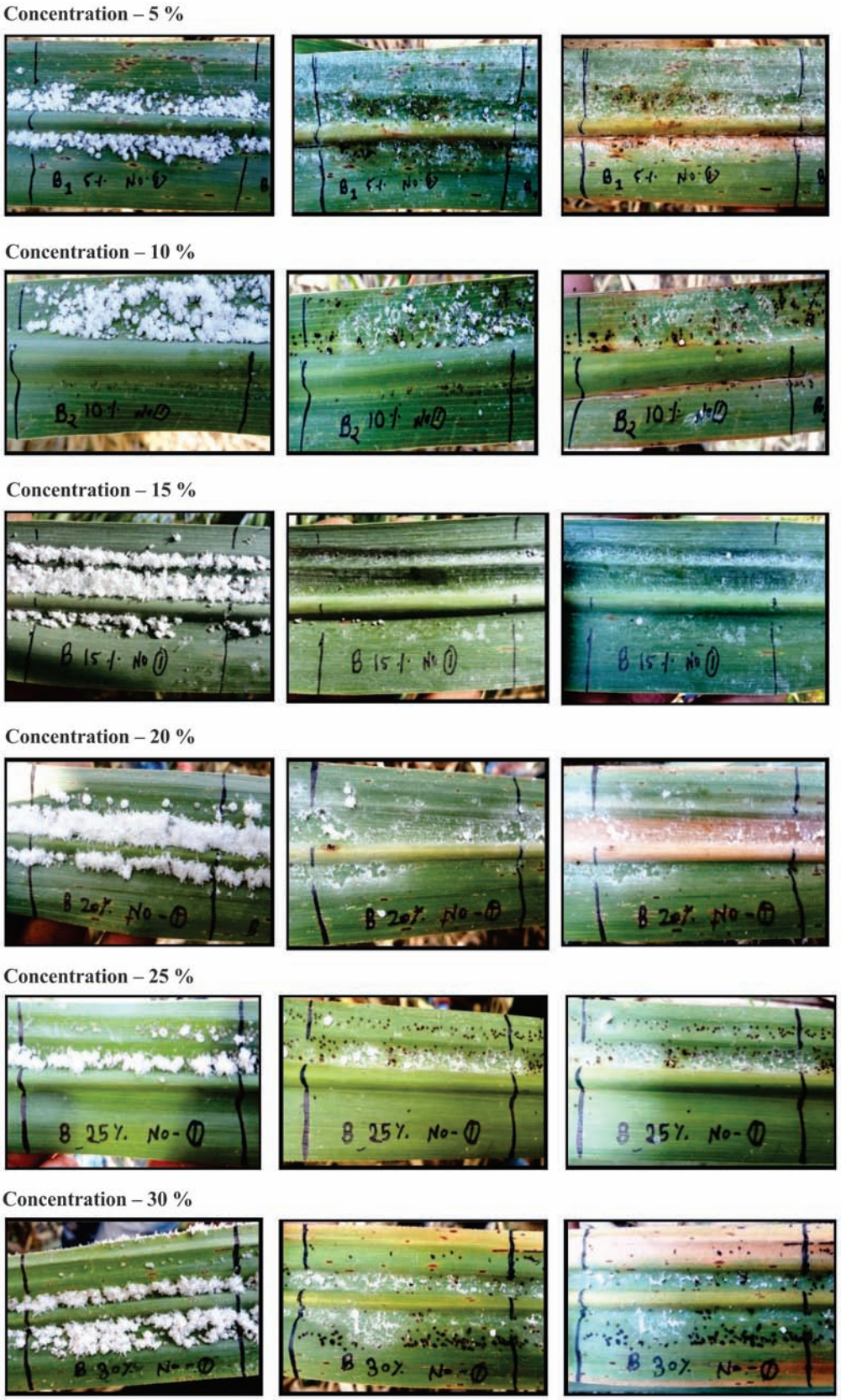

Fig. 1. Effect of *Balanites aegyptiaca* fruit extract on *Ceratovacuna lanigera*
(Before spray; after 3 days; after 7 days)

colour of leaf became light yellow and it increased as the days proceed. On day 7 the leaf being dark yellowish and leaf partially dried. It was noticed more for higher concentration i.e. 30%.

Degri et al. (2012) investigated the effect of *B. aegyptiaca* and *Momordica* leaf on cowpea post flowering insect pests. The result obtained showed that *Balanites* and *Momordica* leaf extracts significantly reduced the infestation of various sucking pests.

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(Manuscript Received: July, 2018; Revised: December, 2018;
Accepted: December, 2018; Online Published: December, 2018)