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LABORATORY EVALUATION OF EFFICACY OF SOME GREEN PESTICIDES AGAINST *OLIGONYCHUS ORYZAE* (HIRST) (ACARI: TETRANYCHIDAE) INFESTING PADDY

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*Table 1 on page 57

Keywords: *Oligonychus oryzae*, paddy, West Bengal, green pesticides, bioassay

Abstract

This paper presents the result of a study on bioefficacy of green pesticides viz *Azadirachta indica* (Neem Seed Kernel Extract), *Anona squamosa* (Custard Apple), *Pongamia glabra* (Karanja), *Vitex negundo* (Nishinda) against paddy leaf mite, *Oligonychus oryzae* (Hirst), all at two concentrations viz 3% and 5%. The leaf extract of custard apple at both concentrations was found to be most effective while NSKE was the poorest.

Introduction

Oligonychus oryzae is an important pest of paddy in southern and eastern India and often does considerable damage to the paddy crop.

Since no study has so far been conducted to control this mite by using green pesticides, this study was undertaken under laboratory conditions to assess bioefficacies of some green pesticides against this mite.

Materials and Methods

The pest mite was collected from South 24 Parganas district of West Bengal state, India around Canning area. The plants which were selected to prepare extracts for assessing their efficacies were *Azadirachta indica* (Neem Seed Kernel Extract), *Anona squamosa* (Custard Apple), *Pongamia glabra* (Karanja) and *Vitex negundo* (Nishinda). In each case, two concentrations, viz 3% and 5% were used. The technique for bioefficacy study was as per

Helle & Sabelis (1985), Gupta *et al.* (2007) and Gupta (2012). The standard leaf-dip technique was used for application of extracts. The observations towards mortality were recorded at 24, 48, 72 and 96 hour intervals after application. The percentage mortality was calculated following the formula of Mc.Donald *et al.* (1970). The data were subjected to statistical analysis for interpretation. A control treatment using only water spray was used.

Results and Discussion

The data pertaining to percentage mortality achieved using different treatments of green pesticides on *Oligonychus oryzae* at different intervals after application have been given in Table 1.

24 hours :- A perusal of Table 1 indicates that the highest mortality was recorded in the case of custard apple extract at 5% conc.; 24 hrs. after spraying which was 70.12% and was at par with custard apple extract at 3% conc. where the mortality was 69.89%. Both the extracts were superior to the other treatments. The mortality in different treatments in descending order can be indicated as below – Custard apple 5% (70.12%) = Custard apple 3% (69.89%) > Nishinda 5% (61.25%) > Karanja 5% (59.99%) > NSKE 5% (59.13%) > Karanja 3% (55.21%) > Nishinda 3% (53.02%). There was no mortality in control treatment.

48 hours:- At this interval, the highest mortality was recorded in case of custard apple 5% which was at par with the same plant extract at 3% and both were superior to NSKE 5%, Nishinda 3%, Karanja 5%, Karanja 3% all being at par and was significantly superior to NSKE 3% which was the poorest (59.10%) among all through the treatments. There was no mortality in control treatment.

72 hours :- At this interval, as was recorded earlier, custard apple 5% maintained its superior efficacy registering mortality of 96.29% and was at par with the same plant extract of 3% as well as with Nishinda 3% conc. recording mortality of 96.29%, 95.00% and 92.89% respectively. All these three were significantly more effective than the other treatments. Karanja 5% and Nishinda 5% both were at par registering mortality of 79.81% and 82.51% respectively. NSKE 3% was poorest among all giving mortality of 61.40% after Nishinda 3% which was 73.03% and that superior to the former. There was no mortality in control treatment.

96 hours :- At this interval, Custard apple both at 5% and 3% as well as Karanja 5% and Nishinda 5% all were at par and were superior to NSKE 5%, Karanja 3% and the latter two were at par and superior to NSKE 3%. At this interval, there was no mortality in case of control.

Conclusion

All the plant extracts showed acaricidal properties, with custard apple at both 3% and 5% concentrations proving the most effective among all the treatments, followed by Nishinda and Karanja while NSKE was the least effective of all.

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ADDITIONS TO THE KNOWN BUTTERFLY FAUNA OF KEDARNATH MUSK DEER RESERVE, UTTARAKHAND, INDIA

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Abstract

Nine species of butterflies, i.e. *Papilio bootes janaka*; *Darpa hanria*; *Notocrypta curvifascia*; *Ochlodes brahma*; *Symbrenthia niphanda hysudra*; *Parantica aglea melanoides*; *Lethe nicetas* and *Euaspa milionia* are added to the known fauna of Kedarnath Musk Deer Reserve in the Garhwal Himalaya of Uttarakhand.

Introduction

A.P. Singh (2009) surveyed the butterflies of Kedarnath Musk Deer Reserve between 13 May, 2006 and 6 September, 2008. He

recorded a total of 3617 specimens of butterflies belonging to 147 species during 11 sampling surveys.

We surveyed the Reserve from 22 May, 2014 to 23 May, 2014. The motor road between Mandal (1528 m) and Kanchulakharak (2660 m) were opportunistically surveyed during the period. In addition to some of the species reported by Singh (2009) the following 9 species were also recorded.

1. Tailed Redbreast *Papilio bootes janaka* Moore, 1857: several individuals of this species were observed on flowering horse