

**NEMATICIDAL ACTIVITY OF *LANTANA CAMARA* FOR CONTROL  
OF ROOT-KNOT NEMATODE (*MELOIDOGYNE* SPP.)**



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**Submitted to**

Central Department of Zoology  
Institute of Science and Technology  
Tribhuvan University  
Kirtipur, Kathmandu  
Nepal  
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## DECLARATION

I hereby declare that the work presented in this thesis has been done by myself, and has not been submitted elsewhere for the award of any degree. All sources of information have been specifically acknowledged by reference to the author(s) and institution(s).

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## RECOMMENDATIONS

This is to recommend that the thesis entitled “NEMATICIDAL ACTIVITY OF *LANTANA CAMARA* FOR CONTROL OF ROOT-KNOT NEMATODE (*MELOIDOGYNE* SPP.)” has been carried out by Ganesh Ghimire for the partial fulfillment of Master’s Degree of Science in Zoology with special paper Parasitology.

This is his original work and has been carried out under our supervision. To the best of our knowledge, this thesis work has not been submitted for any other degree in any institutions.

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## LETTER OF APPROVAL

On the recommendation of supervisor “Prof. Dr. Ranjana Gupta” and co-supervisor “Assoc. Prof. Arvind K. Keshari” this thesis submitted by Ganesh Ghimire entitled “NEMATICIDAL ACTIVITY OF *LANTANA CAMARA* FOR CONTROL OF ROOT-KNOT NEMATODE (*MELOIDOGYNE* SPP.)” is approved for the examination and submitted to the Tribhuvan University in partial fulfillment of the requirement for Master’s Degree of Science in Zoology with special paper Parasitology.

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## **CERTIFICATE OF ACCEPTANCE**

The thesis work submitted by Ganesh Ghimire entitled “NEMATOCIDAL ACTIVITY OF *LANTANA CAMARA* FOR CONTROL OF ROOT-KNOT NEMATODE (*MELOIDOGYNE* SPP.)” has been accepted as a partial fulfillment for the requirements of Master’s Degree of Science in Zoology with special paper Parasitology.

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## LIST OF ABBREVIATIONS

$\mu$	Micron
ADP	Adenosine triphosphate
FOA	Food and Agriculture Organization
GM	Gelatinous matrix
ha	Hector
ICIMOD	International Centre for Integrated Mountain Development
J <sub>2</sub>	Second stage juvenile
J <sub>4</sub>	Fourth stage juvenile
NARC	National Agriculture Research Council
rpm	Revolutions per minutes
SEM	Scanning electronic microscope
SPSS	Statistical package for social studies
UGC	University Grant Commission

## ABSTRACT

Root- knot nematode is an obligate parasite of more than 200 plant species including agricultural, horticultural and woody plants. It causes conspicuous galls in the root due to which plant suffer from vascular damage which disturbs water and mineral uptake. Synthetic nematicide is one of the primary means of nematode control, however, of their higher cost, unavailability at the time of need and the hazards they pose as environment pollution, plants having nematocidal effect are used these days. The present study was conducted to explore the potential of locally available plant species for the control of root-knot nematode. In this study, nematicidal effect of *Lantana camara* was evaluated for the control of *Meloidogyne* spp. Various concentrations of aqueous leaf extracts of *Lantana camara* were assessed *in vitro* conditions against second stage juveniles (J<sub>2</sub>) of *Meloidogyne* spp. Study showed 50% of *Lantana camera* solution at 48 hrs of incubation period and above showed effective in immobilizing second stage of larvae (J<sub>2</sub>) of *Meloidogyne* spp. The standard concentration ‘S’ of leaf extract was found to be highly nematostatic in which 98.66% of juveniles were paralyzed in 48hrs. Similarly, 57.66% of nematode were paralyzed when applied 50% of leaf extract concentration in 48hrs. Further research is needed to evaluate their efficacy under greenhouse and field conditions.