Evaluation of Tomato Cultivars Against Root-knot Nematodes (*Meloidogyne* spp.) In Screen House

A thesis submitted in partial fulfillment of the Master's degree in Zoology with special paper Parasitology

Submitted by

Purni Lama

Submitted to

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Tribhuvan University

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LETTER OF RECOMMENDATION

It is pleasure to mention here that Miss Purni Lama has completed her dissertation work entitled "**EVALUATION OF TOMATO CULTIVARS AGAINST ROOT-KNOT NEMATODES (*Meloidogyne* spp) IN SCREEN HOUSE"** under my supervision. To the best of my knowledge, her work has not been submitted in any publications and for any other degree.

I recommend for the acceptance of this dissertation in partial fulfillment of Master's Degree in Zoology.

……

Prof. Dr. Ranjana Gupta

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LETTER OF APPROVAL

On the recommendation of supervisor Prof. Dr. Ranjana Gupta, this dissertation work of Miss Purni Lama has been accepted as a partial fulfillment of Master's Degree in Zoology of Institute of Science and Technology, T.U.

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CERTIFICATE OF APPROVAL

The dissertation submitted by Miss Purni Lama entitled "**EVALUATION OF TOMATO CULTIVARS AGAINST ROOT-KNOT NEMATODES (*Meloidogyne* spp) IN SCREEN HOUSE"** has been accepted as a partial fulfillment for the Master's Degree in Zoology of Institute of Science and Technology, T.U.

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ABSTRACT

Root-knot nematodes, *Meloidogyne spp* are important pathogen affecting vegetable production including tomato (*Lycopersicon esculentum*); which is popular vegetable crop grown in Nepal. A study was conducted in the screen house under pot conditions to evaluate the response of fourteen tomato cultivars (*Nildhari, Yashwant, Hybrid 1506, Yumi, Lehar, Avinash, CLN 2545 B, CLN 2026 D, HRD-2, HRD-7, C-315, Nayak - B- SS-422, Pusa Ruby* and *T-597-5*) against root-knot nematode *Meloidogyne* spp. All together 70 pots with five replications inoculated with 4 eggs per gram of soil were placed in RCBD. Nematodes were extracted from the whole root and 100g soil sub sample after 36 days of inoculation. Analysis of the data showed that the cultivars Nildhari, Yashwant, Hybrid 1506, Yumi, CLN 2545 B, CLN 2026 D, HRD- 2 were highly susceptible compare to Avinash, HRD - 7 followed by Lehar, Pusa Ruby while C-315, Nayak - B-SS-422 were moderately resistant. Cultivar T - 597-5 was found resistant to *Meloidogyne* spp.

Key words: *Meloidogyne spp*. Tomato, cultivars (Nildhari, Yashwant, Hybrid 1506, Yumi, Lehar, Avinash, CLN 2545 B, CLN 2026 D, HRD-2, HRD-7, C-315, Nayak - B-SS-422, Pusa Ruby T-597-5)

CONTENTS

LIST OF TABLES

Page

LIST OF FIGURES

Page

ABBREVIATIONS AND ACRONYMS

@	:	At the rate
µ	:	Micron
AMF	:	Arbuscular micorrhizal fungi
CMA	:	Corn meal agar
Cv	:	Cultivar
DEGO	:	Dorsal oesophageal gland orifice
e.g	:	Example
GI	:	Gall index
GM	:	Gelatinous matrix
HRD	:	Horticulture Research Division
i.e	:	That is
J_2	:	Second stage juvenile
J_4	:	Fourth stage juvenile
Kg	:	Kilogram
LSD	:	Least significant difference.
NaCl	:	Sodium chloride
NaOCl	:	Sodium hypochloride
NARC	:	National Agriculture Research Council
Pf	:	Final population
Pi	:	Initial population
PPD	:	Plant Pathology Division
ppm	:	Parts per million
RBCD	:	Randomized Complete Block Design
Rf	:	Reproduction factor
SE	:	Standard error
SEM	:	Scanning electron microscope
Spp	:	Species
USA	:	United States of America
Var.	:	Variety