ANTIFUNGAL EFFECTS OF SOME PLANT ESSENTIAL OILS AGAINST *BOTRYTIS CINEREA*

A Dissertation
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CERTIFICATE

This is to certify that the dissertation entitled "**ANTIFUNGAL EFFECTS OF SOME PLANT ESSENTIAL OILS AGAINST *BOTRYTIS CINEREA***" is submitted by **Mr. Ashok Neupane** for the partial fulfillment of Master degree in Botany. The result of the experiments is carried out by him under my supervision. The result of the present work to the best of my knowledge has not been submitted for any degree. I, therefore recommend this dissertation to be accepted for the partial fulfillment of Master Degree in Botany from Tribhuvan University, Nepal.

Date : 11 Aug 2006

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APPROVAL LETTER

This dissertation entitled "**ANTIFUNGAL EFFECTS OF SOME PLANT ESSENTIAL OILS AGAINST *BOTRYTIS CINEREA***" submitted by **Mr. Ashok Neupane** has been accepted for partial fulfillment of the requirement for Master's Degree of Science in Botany.

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Ashok Neupane

ABSTRACTS

Botrytis cinerea causes the gray mold fruit rot of strawberry. The causal pathogen was isolated from the infected strawberry fruit. Pathogenecity test was carried out for the confirmation of disease. *Thymus linearis, Artemisia gmelinii* and *Tanacetum gracile* were collected from Manang as part of the NUFU funded project. *Artemisia indica* and *Murraya koenigii* were collected from the local garden of Central Department of Botany TU. These all five plants were hydrodistilled in the lab for the extraction of essential oils. Each essential oil was diluted to different concentrations of 10,000 ppm, 5,000 ppm, 2,500 ppm, 1,250 ppm and 625 ppm in 80% acetone. The essential oil of *Artemisia gmelinii* was further diluted to 12,500 ppm, 25,000 ppm, 50,000 ppm, 75,000 ppm and 1,00000 ppm for finding out the minimum inhibitory concentration (MIC). The essential oil of *Artemisia indica* was further diluted in to 20,000 ppm, 40,000 ppm, 60,000 ppm and 80,000 ppm respectively. Fungitoxicity was assessed by poisoned food technique. Essential oil of *Thymus linearis* showed the highest fungitoxicity (100%) at the concentration of 10,000-ppm. The minimum inhibitory concentration (MIC) of different essential oils was calculated. MIC of *Thymus linearis* was 10,000 ppm, i.e. at 10,000-ppm concentration; complete inhibition of colony growth of *Botrytis cinerea* is seen. MIC of *Artemisia indica* was found to be 60,000 ppm and MIC of *Artemisia gmelinii* was found to be 75,000 ppm against *Botrytis cinerea.*

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ABBREVIATIONS

[	- Female
Alt.	- Altitude
C. Nepal	- Central Nepal
CDB	- Central department of Botany
Cm	- Centimeters
E. oil	- Essential oil
Ft.	- Feet
GC	- Gas chromatography
HMGN	- His Majesty's Government of Nepal
m	- meter
MAPs	- Medicinal and aromatic plants
MIC	- Minimum inhibitory concentration
mm	- millimeters
N. Asia	- North Asia
N. India	- Northern India
N.W.	- Northern and Western
NARC	- National Agricultural Research Council
NTFPS	- Non- timber forest products.
NUFU	- The Norwegian Council for higher education program for development, research and education.
PDA	- Potato dextrose Agar
ppm	- Parts per million
S.W. China	- Southern and Western China
Syn.	- Synonymous
TLC	- Thin layer chromatography
Viz.	- Visually
W. China	- Western China
W/V	- Weight/ Volume
WC	- Western and central
WEC	- Western, eastern and central