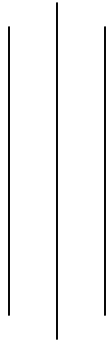
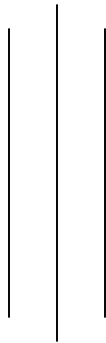


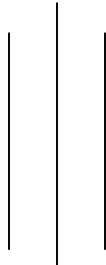
STUDY ON ESSENTIAL OIL OF *VALERIANA*  
*JATAMANSII* JONES.



A Dissertation Submitted To The Central Department Of Botany  
For The Partial Fulfillment Of Master's Degree In Botany



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**TRIBHUVAN UNIVERSITY  
INSTITUTE OF SCIENCE AND TECHNOLOGY  
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**APPROVAL LETTER**

This dissertation work entitled “**Study on essential oil of *Valeriana jatamansii* Jones.**” submitted by Mr. Basanta Raj Pokharel has been accepted for partial fulfillment of master's Degree in Botany.

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**CERTIFICATE**

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## ABSTRACT

In the present investigation, phytochemical screening, biological screening and the study of essential oil constituents of hairy roots produced *in-vitro* and *in-vivo* rhizomes of *Valeriana jatamansii* Jones. were carried out. Phytochemical screening of different samples showed the presence of fatty acids, reducing compounds, basic alkaloids, flavone glycosides, sterol and triterpenes. Biological screening carried out using brine-shrimp nauplii showed that the ethyl acetate fraction of *in-vitro* rhizomes as the most appropriate fraction for study of cytotoxic activities. The amount of essential oil was found the highest in the hairy roots produced in 0.5mg/INAA ie.(0.80%) and the minimum in the rhizomes collected from pyuthan i.e (0.56%). A total of seventeen compounds present in the essential oil could be identified by gas chromatography coupled with mass spectroscopy (GC-MS) analysis followed by mass library search. Patchoulone, 1,2-butyl octyl ester of benzene dicarboxylic acid and bis (2-ethyl hexyl) phthalate were found only in the oil obtained from hairy roots .

# LIST OF CONTENTS

ACKNOWLEDGEMENT

ACRONYMS AND ABBREVIATIONS

ABSTRACT

CHAPTER ONE:	Page
No.	
1. Introduction	1-5
1.1. General Background	1
1.2. <i>Valeriana jatamansii</i> Jones	1
1.2.1. Description of the plant	1
1.2.2. Properties and uses	2
1.2.3. Chemical composition	3
1.3. Justification of present study	3
1.4. Objectives of the study	5
 CHAPTER TWO	
2. Literature Review	6-12
 CHAPTER THREE	
3. Materials and Methods	13-29
3.1. Materials	13
3.2. Methodology	13
3.2.1. Sterilization of glass wares and metal instruments	13
3.2.2. Preparation of stock solution for MS medium	13
3.2.3. Hormone used for investigation	14
3.2.4. Preparation of desired hormone (NAA)	15
3.2.5. Preparation of MS media (As the basal media)	15
3.2.6. Preparation of inoculation chamber	16

3.2.7. Sub culture of hairy roots of <i>Valeriana jatamansii</i> Jones on 0.5 mg/l (NNA)	16
3.3. Acclimatization and collection of Rhizomes	16
3.4. Transplantation of rooted plants to sand and soil mixture	17
3.5. Collection of rhizomes of <i>In-vitro</i> grown plants	17
3.6. Collection of hairy roots	17
3.7. Collection of rhizomes of <i>in-vivo</i> plants	18
3.8. Extraction of essential oils	18
3.9 Condition for GC- MS analysis	18
3.10. Partial fractionation of sample with different polar solvents	18
3.11. Determination of some physical parameters of essential oil	19
3.11.1. Specific gravity	19
3.11.2 Refractive index	19
3.11.3. Organoleptic characteristic of essential oil	19
3.12. Phytochemical screening	20
3.12.1. Screening test for petroleum ether extract	21
3.12.2. Screening test for methanolic extract	23
3.12.3. Screening test for ethyl acetate extract	25
3.13. Biological screening	27
3.13.1. Brine- shrimp bioassay	27
3.13.2. Preparation of artificial sea water	27
3.13.3. Hatching of the shrimp	28
3.13.4. Preparation of samples	28
3.13.5. Bioassay	28
3.13.6. Data analysis	28
 CHAPTER FOUR	
4. Results	30-36
4.1. Extraction and quantification of essential oil	30
4.2. Organoleptic properties of essential oil	30
4.3. Physical parameters	30
4.3.1. Specific gravity	30

4.3.2. Refractive index	30
4.4. Amount of Soxhlet's extracts from different solvent	31
4.5. Phytochemical screening of petroleum ether extracts	31
4.6. Phytochemical screening of ethyl acetate extracts	32
4.7. Phytochemical screening of methanolic extracts	32
4.8. Biological screening	33
4.9. Chemical constituents present in the essential oil	34
4.10. Structure of identified compounds	35
CHAPTER FIVE	
5. Discussion	37-40
CHAPTER SIX	
6. Conclusion	41
CHAPTER SEVEN	
7. Recommendation	42
ANNEX	
Photo plates and spectra	

## LIST OF TABLES:

Table No 4.1: Amount of essential oil obtained	30
Table No 4.2: Organoleptic properties of essential oil	30
Table No 4.3: Percentage yield of Soxhlet's extract	31
Table No 4.4: Phytochemical screening of petroleum ether extracts of plants collected from Pyuthan, rhizomes of <i>in vitro</i> grown plants and hairy roots.	31
Table No 4.5: Phytochemical screening of ethyl acetate extracts of plants collected from Pyuthan, rhizomes of <i>in vitro</i> grown plants and hairy roots.	32
Table No 4.6: Phytochemical screening of methanolic extracts of plant collected from Pyuthan, rhizomes of <i>in vitro</i> grown plants and hairy roots.	33
Table No 4.7: Biological screening of rhizomes collected from Pyuthan	33
Table No 4.8: Biological screening of in-vitro developed rhizomes	33
Table No 4.9: Chemical constituents present in all samples of essential oils of <i>Valeriana jatamansii</i> Jones.	34
Table No 4.10: Comparative study of number of peaks observed and number of compounds identified.	34

## LIST OF SCHEMES

Scheme I : Soxhlet's extraction of plant material for biological screening	18
Scheme II: Cold percolation of plant material for phytochemical screening	21

## ACRONYMS AND ABBREVIATIONS

C-NMR:	Carbon-Nuclear Magnetic Resonance
2,4-D:	2,4-Dichlorophenoxy acetic acid
BAP:	Benzyl amino purine
DMSO:	Dimethyl sulphoxide
EDTA:	Ethylene diamine tetra acetate
fw:	Fresh weight
GC-MS:	Gas Chromatography and Mass Spectroscopy
HMG:	His Majesty's Government
HPLC:	High Performance Liquid Chromatography
IAA :	Indole-3-acetic acid.
LC <sub>50</sub> :	50% Lethal Concentration
MAPs:	Medicinal and Aromatic Plants
MS:	Murashige and Skoog
NAA:	Napthalene acetic acid
TLC:	Thin Layer Chromatography
v/w :	volume/weight (Concentration)
Var.:	Variety
w/v:	weight/volume