ROLE OF GANODERMA IN THE CONTROL AND PREVENTION OF MICROBIAL INFECTIONS

A THESIS Submitted in Partial Fulfillment of the Requirements for the Master's Degree in Zoology with special paper Parasitology

By DIL SHOBHA GURUNG Symbol No – 542 /2060 T.U. Regd. – 32-244216-4













Submitted to
Central Department of Zoology
Institute of Science and Technology
TRIBHUVAN UNIVERSITY
KIRTIPUR, KATHAMANDU
2008

TRIBHUVAN UNIVERSITY

Institute Of Science And Technology

CENTRAL DEPARTMENT OF ZOOLOGY

Kirtipur, Kathmandu, Nepal

RECOMMENDATION

This is to certify that **Miss Dil Shobha Gurung** has successfully completed the dissertation work entitled "**ROLE OF GANODERMA IN THE CONTROL AND PREVENTION OF MICROBIAL INFECTIONS**" under my supervision in partial fulfillment of the requirements for the Master's Degree of Science in Zoology with Parasitology as a special paper. Her work is an original one and deserves for recommendation.

Supervisor

Dr. Ranjana Gupta

Associate Professor

Central Department of Zoology

Tribhuvan University

Kirtipur, Kathmandu, Nepal

TRIBHUVAN UNIVERSITY

Institute Of Science And Technology

CENTRAL DEPARTMENT OF ZOOLOGY

Kirtipur, Kathmandu, Nepal

LETTER OF APPROVAL

On the recommendation of supervisor **Dr. Ranjana Gupta**, this dissertation of **Miss Dil Shobha Gurung** is approved for examination and is submitted to the Tribhuvan University in partial fulfillment of the requirements for Master's Degree in Zoology with special paper Parasitology.

Professor Dr. Vasant Kumar Thapa

Head of Department
Central Department of Zoology
Tribhuvan University
Kirtipur, Kathmandu
Nepal

Date:

TRIBHUVAN UNIVERSITY

Institute Of Science And Technology

CENTRAL DEPARTMENT OF ZOOLOGY

Kirtipur, Kathmandu, Nepal

LETTER OF ACCEPTANCE

The thesis entitled "ROLE OF GANODERMA IN THE CONTROL AND PREVENTION OF MICROBIAL INFECTIONS" submitted by Miss Dil Shobha Gurung for partial fulfillment of the requirement for the Master's Degree in Zoology with Parasitology as a special paper has been approved.

Thesis Evaluation Committee:

	Signature
1)	Head of Department
2)	Internal Examiner
3)	External Examiner
Date:	

ACKNOWLEDGEMENT

I would like to acknowledge my indebtness and gratitude to all those people who assisted me directly and indirectly in the preparation of this thesis. My special thanks goes to my supervisor Associate Professor **Dr. Ranjana Gupta**, Central Department of Zoology, TU, Kirtipur for her efficient guidance, support and encouragement. Perhaps this thesis would not have come in this form had my supervisor not been always willing and enthusiastic to impart her invaluable time and suggestions.

I would like to express my sincere gratitude to Professor **Dr.Vasanta Kumar Thapa**, Head of Central Department of Zoology, TU, Kirtipur for his full support and cooperation in the completion of my research work.

Likewise I am deeply indebted to **Mr. Bhimsen Gurung**, chairman of New Bibek Enterprises Pvt.Ltd. for his willingness and keen concern in providing materials of immense importance to my thesis work. Apart from this I owe my heartfelt acknowledgement and deep respect to him for his invaluable advice, time and significant guidance on my every step of this study.

I would like to extend my hearty thanks to **Dr. Tej Raj Joshi**, General Physician who inspired and motivated me in selecting this unique topic of my immense interest and global need, as well as for a range of guidance he provided me in spite of his busy schedule.

Similarly my appreciation goes to my colleague Mr. Krishna Thapa, my nephews Sandesh Gurung, Manzil Gurung and sister Sukmita Thapa for their reliable secretarial service.

I would like to express my sincere thanks to **DXN Center**, Pokhara and the people of Kathmandu, Lalitpur and Pokhara for their full support and co-operation during my fieldwork.

Finally I would like to offer my extreme appreciation for the kindhearted support and inspiration of the Principal and my entire colleagues of GBS and all my well wishers.

ABSTRACT

Health is a sense of well being of body, mind and soul. Health means developing resistance power and power of function of the body against diseases. From time immemorial ever since man was born, a constant fight is going on between man and the parasites such as bacteria, viruses etc. To undertake this fight, nature has gifted man a natural doctor called "Immunity" right from his birth. This doctor was born with man and dies with him.

Ganoderma lucidium commonly called Lingzhi by the Chinese and known as Reishi in Japan is a basidiomycete, lamella less fungus belonging to the family of Polyporaceae. It has been used for over thousands of years in Japan and China as a miraculous remedy for a wide range of diseases i.e. it is a herb with multiple application hence considered as universal medicine for all diseases.

Currently more than 2000 biochemical and pharmacological reports are published on medicinal properties of *Ganoderma* and its active principles, which have identified the effects of Lingzhi as mainly that of polysaccharides, triterpenes, adenosine and essential fatty acids. Red Reishi is non toxic, produces no side effects and generally recommended as a general tonic and immune modulator i.e. regulates and fine tunes the immune system. The main purpose of the study was to explore the role of *Ganoderma* in the control and prevention of microbial diseases. The research was fundamentally of descriptive type. Primary data were collected through a questionnaire with 19 questions having 4 options each to administer to the subject responses. Out of 100 respondents, 40 were from Lalitpur district 30 from Kathmandu district and 30 from Kaski districts.

Some of the major findings of the study are as follows:

Ganoderma is used for the cure, control and prevention of a wide range of diseases including microbial diseases and is highly effective against these diseases.

Adoption of ganotherapy for microbial cases of infection is fairly limited in the study area and is confined to bacterial and viral diseases. However *Ganoderma* is as highly effective against microbial diseases as in non-microbial cases.

Ganotherapy is considered the best mode of therapy by its consumers.

An extremely large proportion of the Nepalese population is ignorant and unaware of *Ganoderma* and its therapy and is being deprived of its immense health benefits.

Thus from the study it is concluded that *Ganoderma lucidium* has great pharmaceutical value and helps in the control and prevention of a wide spectrum of diseases including a

number of microbial diseases primarily bacterial and viral diseases. It is indeed a great protector, protecting us on every level - physically, immunologically, mentally and spiritually thus helping us to adapt to the world and provides additional power for us to achieve a superior level of life. Thus ganotherapy as a matter of fact, is a natural treatment, the study of which has indeed a great significance in the field of health sector.

CONTENTS

	PAGE NO		
RECOMMENDATION	i		
LETTER OF APPROVAL	ii		
LETTER OF ACCEPTANCE	iii		
ACKNOWLEDGEMENT			
ABSTRACT			
LIST OF TABLES			
LIST OF FIGURES	ix		
CHAPTER-I: INTRODUCTION			
1-4			
1.1 Parasites and Parasitism	1		
1.2 Ganoderma	2		
1.3 Statement of the Problem	4		
CHAPTER-II: OBJECTIVES OF THE STUDY			
2.1 Objective of the Study	5		
2.2 Limitation of the Study	5		
CHAPTER-III: GANODERMA	6-14		
CHAPTER-IV: REVIEW OF RELATED LITERATURE			
15-22			
CHAPTER-V: MATERIALS AND METHODS 23-			
5.1 Study Area	23		
5.2 Study Population	23		
5.3 Research Design	23		

5.4	Sample Size	23
5.5	Source of Data	23
5.6	Sampling Procedure	24
5.7	Research Instruments and Tools	24
5.8	Data Collection Procedures	24
CH	APTER-VI: RESULTS	25-51
6.1	Effects of Various Aspects of Ganoderma on Various Health	
	Problems as a Whole in General.	26
6.2	Effects of Various Aspects of Ganodernma Specifically	
	on Microbial Infections.	32
6.3	Respondents' Opinion about the Best Mode Of Medication for	or the
	Remedy of Various Health Hazards	45
6.4	Public Awareness about Ganoderma and Ganotherapy.	47
CH	APTER - VII: DISCUSSION AND CONCLUSION	52-54
СН	APTER – VII: RECOMMENDATIONS	
55		
RE.	FERENCES	
56-	61	
APP	ENDICES	62-74
APF	PENDIX - A Questionnaire (in English)	62
	- B Questionnaire (in Nepali)	66

- C Causative agents of some microbial diseases	68
- D Testimonials	69
- E Photographs	73

LIST OF TABLES

TA	BLE NO	PAGE NO
1	Ganotherapy Adopted for Various Health Problems	26
2	Effectiveness of Ganotherapy on Various Ailments	28
3	Various Forms of Ganoderma Used by Consumers for Various	
	Health Problems	30
4	Adoption of Ganotherapy for Microbial Infections in General	32
5	Adoption of Ganotherapy for Viral And Bacterial Infections	34
6	Effectiveness of Ganotherapy on Microbial Infections in General	35
7	Effect of Ganoderma on Specific Microbial Infections	37
8	Comparison of Adoption of Ganotherapy for Microbial and Non	
	Microbial Diseases	39
9	Causes of Adopting Ganotherapy for Microbial Diseases	41
10	Various Forms of Ganoderma Used by Consumers for Microbial	
	Infections	43
11	Respondents' Opinion about the Best Mode of Medication for the	
	Remedy of Various Health Hazards.	45
12	Public Awareness about Ganoderma and Ganotherapy	48
13	The Awareness Of Ganoderma and Ganotherapy among SLC	
	and above SLC Graduates	50

LIST OF FIGURES

FIGURE NO		PAGE NO	
1.	Bar diagram illustrating Effectiveness Of Ganotherapy		
	On Various Ailments.	29	
2.	Bar diagram illustrating Various Forms of Ganoderma		
	used by Consumers for Various Health Problems.	31	
3.	Pie Chart illustrating Adoption of Ganotherapy for		
	Microbial Infections in General.	33	
4.	Pie Chart illustrating Effectiveness of Ganotherapy		
	on Microbial Infections in General.	36	
5.	Bar diagram illustrating Effect of Ganoderma On		
	Specific Microbial Infections.	38	
6.	Pie Chart illustrating Causes of Adopting Ganotherapy		
	for Microbial Infections.	42	
7.	Bar diagram illustrating Various Forms of Ganoderma		
	Used by Consumers for Microbial Infections.	44	
8.	Pie Chart illustrating Respondents' Opinion about the Best M	lode	
	Of Medication for the Remedy of Various Health Hazards.	46	
9.	Bar diagram illustrating Public Awareness about Ganoderma		
	and Ganotherapy.	49	
10.	Bar diagram illustrating Awareness of Ganoderma a	end	
	Ganotherany among SLC and above SLC graduates	51	