

**STUDY ON THE GUT BACTERIAL COMMUNITIES IN
SILKWORM *Samia ricini* FED ON DIFFERENT FOOD
PLANTS**

A THESIS

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HATARKHI MWCHAHARY

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DEPARTMENT OF ZOOLOGY

BODOLAND UNIVERSITY, KOKRAJHAR-783370

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DECLARATION

I, Hatarkhi Mwchahary, hereby declare that the Thesis entitled "Study on the Gut Bacterial Communities in Silkworm Samia ricini Fed on Different Food Plants" is the result of my own work, carried out at Department of Zoology, Bodoland University under the guidance of Dr. Dulur Brahma for the degree of Doctor of Philosophy and I have not submitted it earlier elsewhere for any other degree of any other University. Due acknowledgments have been made for the assistance and help taken during my work.

Date: 09/10/2024
Place: Kokrajhar

Hatarkhi Mwchahary
Hatarkhi Mwchahary
Department of Zoology
Bodoland University
Kokrajhar, Assam-783370



BODOLAND UNIVERSITY:DEPARTMENT OF ZOOLOGY
DEBARGAON, RANGALIKHATA, KOKRAJHAR-783370, BTR ASSAM

DR. DULUR BRAHMA
ASSISTANT PROFESSOR
Email:brahmadulur@gmail.com
Contact No.+91 9101348701

Ref. No.:BU/ZOO-DEPTT./DB-PF/PhD Thesis/CF/01

Date: 04.10.2024

I hereby certify that the present Thesis entitled "Study on the Gut Bacterial communities in Silkworm Samia ricini Fed on Different Food Plants" is an independent work of Ms. Hatarkhi Mwchahary submitted to Bodoland University for the award of the degree of Doctor of Philosophy (Zoology), has been carried out under my guidance at Department of Zoology, Bodoland University. Ms. Hatarkhi Mwchahary has fulfilled all the requirements laid by the university for the award of Doctor of Philosophy in Zoology under the faculty of Science and Technology.

To the best of my knowledge and belief, this work is original and has not been submitted so far in part or in full for the award of any degree or diploma of any University Institute.

Date: 04.10.2024

Place: Kokrajhar

Dr. Dulur Brahma
Assistant Professor
Department of Zoology
Bodoland University
Kokrajhar, Assam-783370

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LIST OF ABBREVIATIONS AND SYMBOLS

%	: Percentage
°C	: Degree Celsius
µg	: Microgram
µl	: Microliter
µM	: Micromolar
1492R	: 1492 Reverse
27F	: 27 Forward
2D	: Two Dimension
A	: Adenosine
ACE	: Abundance-based Coverage Estimator
ADS	: Arginine Dihydrolase
AMP	: Antimicrobial Peptide
AMY	: Amygdalin
API	: Analytical Profile Index
ARA	: Arabinose
BLAST	: Basic Local Alignment Search Tool
BmCPV	: <i>Bombyx mori</i> Cytoplasmic Polyhedrosis Virus
BOD	: Biological Oxygen Demand
bp	: Base pair
CIT	: Citrate Utilization
CMC	: Carboxymethylcellulose
CMER&TI	: Central Muga Eri Research and Training Institute
D	: Days
dH ₂ O	: Distilled water
DMSO	: Dimethyl sulfoxide
DNA	: Deoxyribonucleic acid
DNSA	: 3,5, Dinitrosalicylic acid
EDTA	: Ethylenediamine tetra acetic acid
FASTA	: Fast adaptive Shrinkage Threshold Algorithm
FLASH	: Fast Length Adjustment of Short reads

g	: Gram
GC	: Guanosine Cytosine
GEL	: Gelatinase
GLU	: Glucose
h	: Hour
H ₂ S	: H ₂ S production
HCL	: Hydrochloric acid
IND	: Indole production
INO	: Inositol
IQR	: Interquartile Range
KEGG	: Kyoto Encyclopedia of Genes and genomes
L	: Liter
LAF	: Laminar Air Flow
LDC	: Lysine Decarboxylase
M	: Molar
Mb	: Megabyte
MEL	: Melibiose
mg	: Milligram
min	: Minute
ml	: Milliliter
mM	: Millimolar
MRSA	: Methicillin-Resistant <i>Staphylococcus aureus</i>
MSN	: Mannitol
n	: Number
NCBI	: National Center for Biotechnology Information
NJM	: Neighbor joining method
ng	: Nanogram
nm	: Nanometer
OD	: Optical Density
ODC	: Ornithine Decarboxylase
ONPG	: Ortho Nitro Phenyl-βD- Galactopyranosidase
OTU	: Operational taxonomic unit

OX	: Oxidase
PBS	: Phosphate Buffered Saline
PC	: Principal Coordinate
PCoA	: Principal Coordinate analysis
PCR	: Polymerase Chain Reaction
PERL	: Practical Extraction and Report Language
PICRUST	: Phylogenetic Investigation of Communities by Reconstruction of Unobserved States
pmol	: Picomole
pNPP	: p-nitrophenylpalmitate
Q	: Phred Score
QIIME	: Quantitative Insights into Microbial Ecology
RHA	: Rhamnose
rpm	: Rotation per minute
RNA	: Ribosomal Ribonucleic acid
S	: Svedberg
SAC	: Saccharose
SD	: standard deviation
SDS	: Sodium Dodecyl Sulfate
sec	: Second
SOR	: Sorbitol
sp.	: Species
STAMP	: Statistical Analysis of Metagenomics Profile
T	: Thymine
TAE	: Tris Acetate Ethylenediaminetetraacetic acid
TCA	: Trichloroacetic acid
TDA	: Tryptophane Deaminase
TE	: Tris EDTA
U	: Unit
UCHIME	: Ultra-fast Chimera Identification and Removal
UPGMA	: Unweighted Pair Group Method with Arithmetic Mean
URE	: Urease

UV-VIS	: Ultraviolet-Visible
V	: Volt
VP	: Voges Proskauer
w/v	: Weight by volume