We hereby certify that this is the revised version of the thesis entitled "**A COMPARATIVE STUDY ON THE FRESHWATER ALGAL COMMUNITY FROM MAIN RIVERS IN PALAKKAD DISTRICT**" submitted by **Ms. Seena K.K.**, under my guidance after incorporating the necessary corrections or suggestions made by the adjudicators. The content of the CD is the same as in the hard copy.

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CERTIFICATE

This is to certify that the thesis entitled **"A comparative study on the freshwater algal community from main rivers in Palakkad district"** is an authentic record of research work carried out by **Mrs. Seena K. K.** under my supervision in fulfilment of the requirement for the degree of Doctor of Philosophy, in Botany of University of Calicut. The results embodied in this thesis have not been included in any other thesis submitted previously for the award of any degree or diploma of any other university or institution. Also certified that the contents of the thesis have been checked using anti-plagiarism data base and no unacceptable similarity was found through the software check.

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DECLARATION

I, Seena K. K., hereby declare that the thesis entitled **"A comparative study on the freshwater algal community from main rivers in Palakkad district"** submitted to the University of Calicut, for the award of the degree of Doctor of Philosophy in Botany is a bona fide record of the original research work carried out by me under the supervision and guidance of Dr. Ignatius Antony and Co-guidance of Dr. Anto P. V., Department of Botany, St. Thomas' College (Autonomous), Thrissur and that it has not been submitted earlier either in part or full for the award of any degree/diploma to any candidate of any University.

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PREFACE

Rivers are an important part of the earth's water cycle, they transport vast amounts of water to support life on the planet and play an important role in the earth's topography. They are taxonomically diverse and resourceful systems in which living organisms interact, modify habitat, and contribute to the preservation of aquatic ecosystems. Most of the freshwater river ecosystems get polluted due to discharge of domestic sewage, industrial effluents, agricultural runoff and dumping of solid wastes. These factors lead to a luxuriant growth of organisms especially algae. Biomonitoring the freshwater river ecosystem in terms of phycological evaluation provide useful information about the trophic status of the water body.

Algae are the most diverse group of aquatic organisms, serving as the primary food source for higher trophic levels and as biological indicators of water pollution. Algal assays are ideal for analysing a wide range of ecological issues and assessing environmental quality. Regular monthly investigations from ten permanent sampling stations were carried out to collect baseline data on the changes in algal diversity, physico chemical water quality parameters, nutrient content and pollution status from Bharathapuzha and Bhavani river ecosystem.

The present investigation is aimed to delineate the ecology and spatiotemporal variation of freshwater algal diversity with respect to physico chemical parameters in rivers of Palakkad district. Analysis and interpretation of the data on taxonomy and ecology of freshwater algae revealed that the Palakkad district's river ecosystem is moderately polluted, with high levels of organic pollution in some areas.

Dedicated to my family

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ABBREVIATIONS

° C	Degree Celsius
%	Percentage
µm	Micrometre
Km	Kilometre
m	Metre
mm	Millimetre
cm	Centimetre
Mg/L	Milligram per litre
µmhos/cm	Microsiemens per centimetre
fig	Figure
Lat	Latitude
Long	Longitude
pH	Potential of Hydrogen
EC	Electrical conductivity
TDS	Total dissolved solids
ANOVA	Analysis of variance
DO	Dissolved oxygen