

PREFACE

The Zoology laboratory of Shivaji University, Kolhapur (Maharashtra, India) is engaged in extensive work on lipids, their distribution in various organs and tissues, their composition and alterations in them under varying physiological conditions, both occurring naturally and induced experimentally, and their functional significance in various life processes. One of the aspects of the present study is to find out the lipid composition in the brains of vertebrates. In addition to the work on lipids, the laboratory has also undertaken extensive research projects on other important tissue metabolites such as mucosubstances, proteins and enzymes, especially the lysosomal ones, in the vertebrates and invertebrates. The studies incorporated in the present dissertation form part of such an extensive research project and concern with the lipids in the brains of twenty-two selected vertebrate.

The present dissertation is divided into four chapters. The first chapter gives a brief but critical review of the literature on the lipids in the vertebrates brain, the reasons that lead to the present investigation and also outlines the plan of proposed work. The second chapter describes twenty-two selected vertebrates, namely, Mrigal (Cirrhina mrigala), Labeo (Labeo rohita), Frog (Rana tigerina), Wall lizard (Hemidactylus flaviviridis), Lizard (Calotes

versicolor), Water-snake (Xenochrophis piscator), Rat snake (Ptyas mucosus), Fowl (Gallus domesticus), Sparrow (Passer domesticus), Wood-pecker (Picus rabieri), Koel (Eudynamys scolopacea), Crow (Corvus splendens), Baya weaver bird (Polccus philippinus), Magpie robin (Copsychus saularis), Green bee eater (Merops orientalis), Red vented bulbul (Pycnonotus cafer), Crimson breasted barbet (Megalaima haemacephala), Brahminy myna (Stannus pagodarum), Spotted munia (Lunchura punctulata), Mice (Rattus albican), Black rat (Rattus rattus) and Squirrel (Sciurus vulgaris) which forms the material for the present investigation and also describes the biochemical techniques in detail employed in the present work. Chapter three includes observations on the lipids in the brain of fishes, amphibian, reptiles, birds and mammals. The fourth chapter includes discussion on comparative considerations of lipids in the brain of vertebrates, and concluding remarks. The dissertation ends with an extensive bibliography of the literature cited in various chapters.