ABSTRACT

In the present study, untapped aquatic and terrestrial sources of animal and plant origin, have been exploited for screening of lipid active constituents with special reference to fatty and defatty components.

CHAPTER - I gives an introductory survey with particular reference to definition, distribution, types, functions and structures of lipids. The current trend of work in the field, the scope and objective of the present study along with a brief account of the work done by others.

CHAPTER - II gives a brief account of the methods used in the study of the test materials. The details include : Extraction, Separation and Identification by Chromatographic and Spectroscopic methods.

CHAPTER - III incorporates Studies on active principles of lipids from aquatic sources.

(A) deals with the Studies on Labeo rohita lipids.

(i) Rapid determination of polyunsaturated fatty acids by $^1$H NMR. The difference of chemical shift observed for methyl resonance of n-3 polyunsaturated fatty acid with respect to methyl resonance of all other fatty acids is the basis of determination.

(ii) Increase in polyunsaturated fatty acid content determined by lipase treatment.

(iii) Positional distribution of n-3 fatty acids by $^{13}$C NMR. The positional distribution of polyunsaturated fatty acids have been attempted from the spectrum of carbonyl carbon, methylene carbon and glycerol carbon region.

III(B) deals with polyunsaturated fatty acids from Achlya ambisexualis. Docosapentaenoic and docosahexaenoic acids have been isolated from the fungus. Looking to the specific functions of these acids - the finding of a new source gains significance.
CHAPTER IV includes Studies on active principles of lipids from terrestrial sources involving seed fats.

(A) deals with the preparation and identification of derivatized unusual fatty acids from seed oil of *Artemesia vestita*.

(B) deals with analysis of *Wrightia tinctoria*. An derivatized unusual fatty acid has been identified from the seed fat.

CHAPTER V is on Miscellaneous studies involving lipids.

A. describes composition of acid water from seed oil soap stock of *Buchanania lanzan*. The different components have been identified by HPLC.

B.(i) deals with studies on nontraditional seeds of *Boswellia serrata*. The fatty acid composition of the seed oil has been identified by GC and Mass spectrometry.

(ii) deals with the analysis of unsaponifiable matter of the *Boswellia serrata* oil. The unsaponifiable matter of the oil, identified by HPLC and GC.

C.(i) deals with analysis of lipase treated C\textsubscript{18:0} solid glyceride by HPLC. HPLC has been used and monostearin followed by stearic acid distearin and tristearin have been separated. Tristearin was found to have high and stearic acid low response.

(ii) deals with analysis of C\textsubscript{18:1} isomer acids by GLC. The DMOX derivatization of fatty acids give better results than methyl esters in separating 18-carbon trans and cis isomers by GLC.

SUMMARY - The findings have been summarised at the end of the thesis.