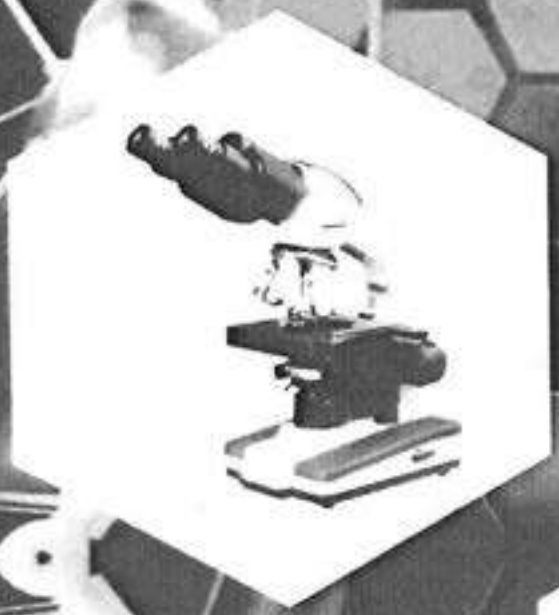
Methods and Tools in Biosciences



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Contents

Lipid Analysis, Techniques and Estimation Procedures

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Abstract

Lipids are one of the major constituents of foods, and are important in our diet for a number of reasons. They are a major source of energy and provide essential lipid nutrients. The terms fat, oil and lipid are often used interchangeably by food scientists. Although sometimes the term *fat* is used to describe those lipids that are solid at the specified temperature, whereas the term *oil* is used to describe those lipids that are liquid at the specified temperature. The lipid analysis depends on the type of food being analyzed (*e.g.* meat, milk, margarine, cookie, dairy cream), the nature of the lipid component (*e.g.* volatility, susceptibility to oxidation, physical state) and the type of analytical procedure used (*e.g.* solvent extraction, non-solvent extraction or instrumental). In order, to decide the most appropriate sample procedure it is necessary to have a knowledge of the physical structure and location of the principal lipids present in the food. The present article provide much information to analyse the lipid properties with different techniques.

Key-words : Lipids, physicochemical properties, extraction, composition, chromatography

1. Introduction

Lipids are usually defined as those components that are soluble in organic solvents (such as ether, methanol or chloroform), but are insoluble in water. This group of substances includes triacylglycerols, diacylglycerols, mono-acylglycerols, free fatty acids, phospholipids, sterols, carotenoids and vitamins A and D. Triacylglycerols are esters of three fatty acids and a glycerol molecule and are the major component of most foods accounting for 95 to 99% of the total lipids present. The lipids may be termed as fat when they are solid at a specific temperature, and they are termed oil when they are liquid at a particular temperature. Each type of fat has a different profile of fatty acids which vary in chain length, degree of unsaturation and position of the glycerol molecule which determines