

**PRELIMINARY STUDY ON PHOSPHOLIPIDS IN MARINE FISH
SPECIES BY USING HIGH-PERFORMANCE LIQUID
CHROMATOGRAPHY**

By

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The Burton et al. (1985) procedure was selected to identify and separate phospholipids in three marine fishes. The three marine fishes were herring, mackerel and sardine, which were selected among the most consumed fishes in Malaysia. Two different concentrations of SDS were used in the extraction system. The primary objectives were to separate and identify various phospholipids in the fishes as well as to compare the usage of two different SDS concentrations on the extraction system in term of total lipid yield. From this analysis, the most separated and identified phospholipids among the three fishes, were Phosphatidylethanolamine (PE) and Phosphatidylcholine (PC). When extracting, it was found out that the lower the concentration of SDS used, it will give higher total lipids. In fish samples, the usage of different concentration in SDS solutions gave different detection of phospholipids. For 0.05M of SDS, PI, PE and PC can be identified in Herring, PE and PC in both Mackerel and Sardine. As comparison, 0.1M of SDS concentration will give the following results; only PE and PC can be detected in Herring, PE, whereas only PE and PC can be detected in both sample Mackerel and Sardine.

CHAPTER 1

INTRODUCTION

Lipids are the most concentrated forms of energy stored in fish. Lipids occur in fish as two broad groups. The first consists of triglycerols (triglycerides), and is the main form in which energy resources are stored. The lipids are often observable as actual globules of oil that have accumulated in the flesh, liver and, in some species, around the intestine also. The second lipid group, mostly phospholipids and cholesterol, is an essential component of cell walls, mitochondria and other subcellular structures (Standsby, 1967).

The lipids in the edible part of fish are important to the food scientist in three respects. Firstly, any oily deposits noticeably influence the sensation of the cooked flesh in the mouth of the eater. Herrings, for example, when well-fed and fat-rich, tastes very smooth and succulent, although the sensation is produced by oil, not water. Secondly, fish lipids, as is now widely recognized, are very beneficial to the health of the consumer. Finally, flesh lipids contribute to the flavor of the fish (Love, 1992).

Recently, the demand for phospholipids has increased in the field of nourishment, cosmetic and pharmaceutical industries. Phospholipids used in the pharmaceutical