SIGNIFICANCE OF ANALYSIS OF LIPIDS

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INTRODUCTION

Fish lipids exist as phospholipids (tissue fat) and triglycerides (depot fats or neutral lipids). During storage, fish lipids deteriorate by hydrolysis and oxidation.

Both phospholipids and triglycerides are hydrolyzed by enzymes into free fatty acids. The indices used for measuring the degree of hydrolysis are:

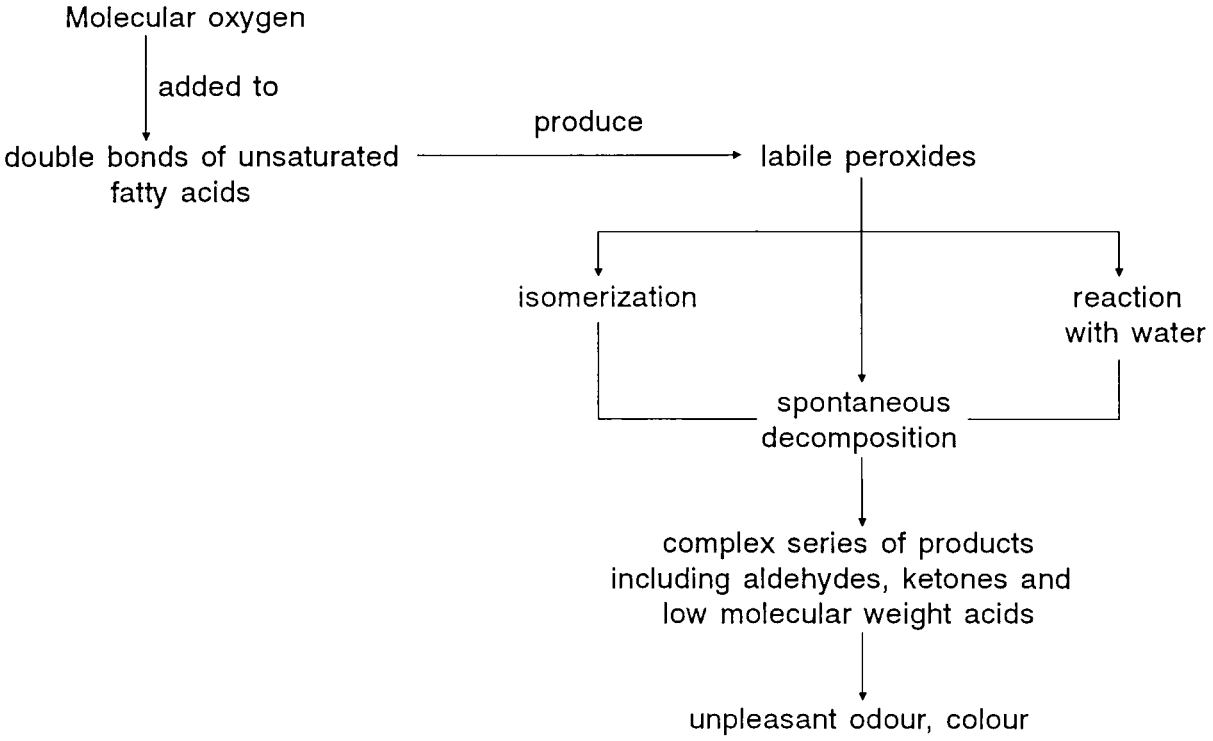
i) the phospholipid content

ii) the acid value (AV)

iii) the free fatty acid value (FFA)

iv) the saponification value (SV)

During oxidation, the highly unsaturated fatty acids of fish fats react with atmospheric oxygen to yield a complex series of compounds including aldehydes, ketones, and acids of lower molecular weight. These by-products contribute to the unpleasant taste and rancid odour of spoilt fish. Exposure of the fish to heat and light, to moisture, and to the presence of traces of certain metals (eg. copper, nickel and iron) accelerates this oxidation reaction. The reaction involved may be summarized as follows:



Chemical parameters which are used for determining the extent of spoilage due to oxidation of fish lipids are:

i) the peroxide value (POV)

ii) the thiobarbituric acid number (TBA)

iii) the oxidation index