

INVESTIGATION OF FORMALDEHYDE PRODUCTION IN SKIPJACK (*Katsuwonus pelamis*) AND SHARK (*Carcharhinus spp.*) FISH SPECIES UNDER SEVERAL STORAGE CONDITIONS.

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ABSTRACT

The production of formaldehyde in skipjack and shark fish species at room temperature (34°C), in the refrigerator (4°C) and in the deep freezer (-10°C) with exposure to air (unwrapped) and without exposure to air (wrapped with polythene) was examined. With storage time, an increase in the formaldehyde concentration was observed irrespective of the storage temperature in both fish species. Furthermore, higher storage temperatures enhanced the formaldehyde production in both fish types. However, no difference in the formaldehyde production rate was noted between wrapped and unwrapped fish. Deliberate addition of formaldehyde can be differentiated only if data on natural formation is available for each fish species and the exact transportation and storage conditions, in particular, storage time and temperature.

KEY WORDS: Fish, Formaldehyde, Shark, Skipjack,

INTRODUCTION

Fish is a highly perishable product, which provides valuable nutrients to the diet. However, the suitability of fish for consumption depends on storage conditions because certain potentially toxic compounds such as formaldehyde can be produced in some fish species during post harvest storage.

Natural production of formaldehyde in fish muscle has been recognized for many years (Amano and Yamada, 1964). It was first noted by Isida (1917). The post harvest formation of formaldehyde in fish muscle has its origin in trimethylamine oxide, a compound commonly found in marine fish species. This compound breaks down by enzyme action to form equimolar amounts of dimethylamine and formaldehyde during post harvest storage (Reece, 1983).

The formation of formaldehyde starts immediately after the death of fish. The production rate is dependent on fish species and storage conditions. Under normal storage conditions, i.e. under room temperature, only small quantities of formaldehyde are produced. It has been reported that natural formation of formaldehyde takes place rapidly under freezing than at ambient temperature. Production of formaldehyde is inhibited by both oxygen and potassium cyanide and activated by reduced nicotinamide dinucleotide (Reece, 1983).