

Title Physicochemical and biochemical changes during frozen storage of minced flesh of lizardfish (*Saurida micropectoralis*)

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Citation Food Chemistry Volume 90, Issues 1-2, March-April 2005, Pages 141-150

Keyword Denaturation; Dimethylamine; Formaldehyde; Frozen; Lizardfish TMAOase; Trimethylamine-*N*-oxide

### Abstract

Physicochemical and biochemical changes of minced flesh of lizardfish (*Saurida micropectoralis*) kept in air and vacuum during frozen storage at  $-20\text{ }^{\circ}\text{C}$  for 24 weeks were investigated. Formaldehyde and dimethylamine (DMA) contents increased with a concomitant decrease in trimethylamine oxide (TMAO) content as the storage time increased ( $P<0.05$ ).  $\text{Ca}^{2+}$ -ATPase activity decreased continuously with a coincidental decrease in the salt-soluble fraction. Disulfide bonds were increasingly formed throughout the storage ( $P<0.05$ ). Nevertheless, surface hydrophobicity increased and reached a maximum at week 4 with a subsequent decrease up to the end of storage. In general, greater changes were observed in lizardfish mince kept under vacuum than in air. A marked increase in trimethylamine-*N*-oxide demethylase (TMAOase) activities was observed up to 6 weeks, followed by continuous decrease up to 24 weeks of storage. TMAOase activity, as well as formaldehyde formation, could be reduced to some extent with packaging containing oxygen.