

Fish Quality Assessment Based on Glass Transition Temperature (Case Study: Frozen Fish and Fish Cracker)*

Tri Winarni Agustini^{*)}, Toru Suzuki and Eko Susanto

^{*)} Fisheries Department, Fish Product Processing Technology Study Program, Faculty of Fisheries and Marine Science, Diponegoro University
Jl. Prof. Soedarto, SH, Tembalang Campus, Telp +62-24-7474698; Fax: +62-247474698
Email: tagustini@yahoo.com

ABSTRACT

Some Indonesian fish products have potential prospect for export commodities, including frozen fish and fish cracker products. It has been stated that glass transition temperature (T_g) can be found in frozen and dried products. There are limited study on glass transition temperature in relation to their stability on such product. Glass transition temperature (T_g) is a physicochemical indicator that can be used to determine quality stability of food including fisheries products. T_g can determine the physical state of the products in which it is considered that in glassy state, the stability of food is in very high condition. The T_g of product will be related to water content. Using glass transition parameter, fisheries products can be evaluated and predicted for its shelf life. Recently, the study of food shelf life in Indonesia is mainly based on water activity and water content, very rare was focus on glass transition that is very suitable for dried and frozen products. This experiment was conducted to evaluate the T_g of frozen fish product and fish crackers.

Material used in this experiment were yellowfin tuna (*Thunnus albacares*) and some Indonesian fish crackers (with different market brand) produced traditionally and some from industry. Glass transition temperature was analyzed by drying method (AOAC).

The result showed that different sample with different characteristic on physicochemical properties give different in water content and also glass transition temperature. Glass transition temperature (T_g) of the products was depend on the water content and components of products. Based on the results, T_g of fish crackers was in the range of 58.8°C – 76.4°C and frozen for tuna was – 55°C. The water content of fish crackers was ranged between 11.9% - 17.8% and for frozen tuna was 78%.

Key words: fish crackers, frozen tuna, glass transition, water content, shelf life, quality

* This paper was presented on the 7th Science Technology Conference, Science and Technology for Country Development, Thammasat University, Bangkok, July 10, 2009.

* This abstract has been published on the proceeding of the 7th Science Technology Conference, Science and Technology for Country Development, pp. 17.