

Control of glass transition temperature of food by salt
and its application to storage of salted and dried products.

Masanobu ISHIKAWA and Chiharu INOUE

Department of Food Science and Technology, Faculty of Fisheries
Tokyo University of Fisheries

Summary

The aim of this study is to collect fundamental data of the effect of salt and water on the glass transition temperature of fisheries products to aide the development of a better storage technology of fisheries products.

The glass transition temperatures (T_g) of several samples of red meat of bigeye tuna (*Thunnus obesus*) were within the range between $-71\text{ }^\circ\text{C}$ to $-68\text{ }^\circ\text{C}$ and the T_g did not depend on the freezing rate of samples.

The T_g , change of specific heat and water content of six fishes: bigeye tuna, yellowfin horse mackerel (*Trachurus japonicus*), spotted mackerel (*Scomberomorus niphonius*), red halibut (*Hippoglossoides dubius*), alfonsino (*Beryx splendens*) and Japanese common squid (*Todarodes pacificus*) were measured. The T_g and the specific heat change could be correlated well with the water content of the five fishes except Japanese common squid.

The T_g of meat samples of bigeye tuna were similar to the T_g of its meat extracts .

Both of the T_g of meat samples of bigeye tuna or its meat extracts appreciably decreased by the addition of NaCl. In the other hand, the drying of the meat or the meat extracts from 71.8% to 67.5% did not change T_g . The dilution and the concentration of the meat extracts also did not affect the T_g .