REOLOGY OF ENZYMIC PROTEIN HYDROLYSATES

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An important aspect of modern scientific research is an efficient use of marine resources. The creation of science-based integrated low-waste technologies through deep processing of hydrobates is of grate interest. The production of protein hydrolysates is one of these technologies.

The aim of study was to get an enzymatic protein hydrolysate and to analyse its physical and chemical properties which affect the parameters of the technological processes connected with the production and application of hydrolysates.

We used fish (poutassou) as a protein-containing raw material and pancreatine as enzyme. Efficiency of enzymatic hydrolysis was evaluated by increasing the concentration of amine nitrogen (N_{an},%) in the protein substrate. Values of the hydrolysate viscosity during the enzymolysis were measured by capillary viscometry method. The dependence of amine nitrogen concentration and kinematic viscosity of hydrolysate on time of the enzymolysis is presented in the Figure 1.

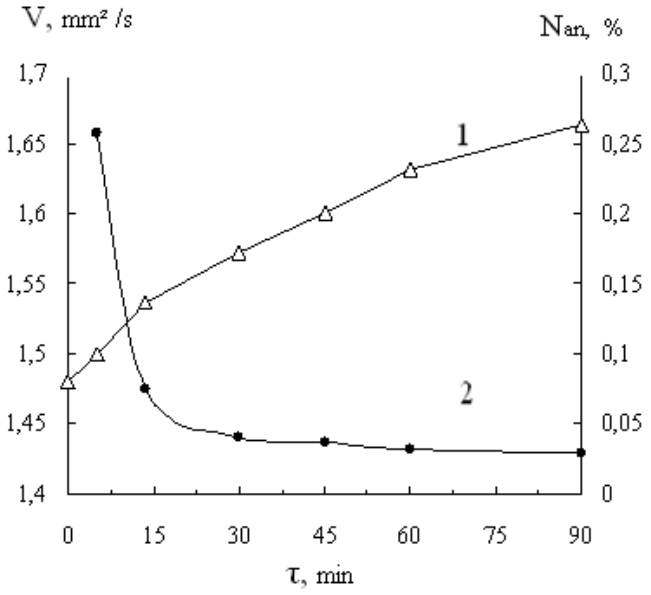

Fig. 1 Dependence of amine nitrogen concentration (1) and kinematic viscosity of hydrolysate (2) on time. T = 49 ± 1°C, pH = 7,8 - 8,0, C_{enzyme} = 6 (g)/(kg of raw material).

The content of amine nitrogen in hydrolysate increases and kinematic viscosity of hydrolysate decreases in time and reach nearly constant values in 60 minutes.

Experiment data show that when cleavaging of peptide bonds there is a significant decrease in the viscosity of a protein hydrolysate. Such a decrease makes easier further technological processing, such as product transportation through the pipeline, the process of drying in a spray drier, etc.