

STUDY OF LIPASE STABILITY IN VEGETABLE RAW MATERIALS

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A complex of hydrolytic enzymes, where lipase is the main component, plays a key role in oilseeds quality formation and change. This enzyme activity and action nature are important in preparation and storage of oilseeds. Lipases quickly break down triacylglycerols with seed moisture and storage temperature increasing. It leads to seeds oil acid number increasing and its quality deterioration. Dry oilseed lipase is resistant to temperature and wet enzyme is quickly inactivated. The activity is also affected by triacylglycerols fatty acid composition. The gas environment significantly affects the lipases activity [1].

The activity and mode of action of lipases are closely correlated with standardized seed quality parameters such as acid number, moisture content, heavy metal contamination and mycotoxins. At the same time, the influence of some factors, such as excessive moisture, content of weed and oil impurities, leads to a change in enzyme activity. The enzyme activity itself is closely correlated with the acid number changes (one of the most important normative indicators of seeds) and the toxic elements contamination level [1].

The study of oilseed lipases stability and search of their activity regulation ways are the urgent tasks for seeds oxidative stability maintaining and their shelf life increasing consequently [2].

Experimental study of lipolytic enzymes stability in such oilseeds, as sunflower, flax and sesame, depending on the moisture and processing of raw materials with microwave radiation was carried out. The data in a form of approximation equations, indicated the feasibility of using lipase complex inactivating method in these types of oilseeds were obtained. Based on the equation analysis, the oilseeds treatment rational conditions, namely moisturizing to a 11 – 13 % moisture content, as well as the 210 – 260 s microwave radiation treatment time, were established [3].

The study of processing of moistened these species oilseeds in the microwave range electromagnetic field can be developed in such food industry branches as oil and fat and confectionery. Thus, the problem of maintaining the oxidative stability of oilseed lipids during the regulated storage periods can be solved, especially under the negative factors influence.

References:

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