

Evaluation of Storage Stability on Soybean (*Glycine max* L.) Flour through the Various Storage Conditions

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[Introduction]

Soybean (*Glycine max* L.) is one of major crop widely cultivated throughout Asia and consumed in variety of forms like soymilk, paste, soybean flour rich in protein, lipid, and other nutraceuticals. The oxidation and browning during the distribution process leads to nutritional loss or quality change resulting in poor storage stability. This study focuses on the storage stability through testing different storage conditions of soybean.

[Materials and Methods]

In this study, the soybean flour was made of soybean cultivar “Saedanbaek” which manufactures soybean flour from raw and roasted soybean packed in polyethylene and polypropylene film bags and stored at 4, 20, and 45°C for 48 weeks. The acid, conjugated diene, peroxide, p-anisidine, thiobarbituric acid (TBA) values, and lipoxigenase activity were measured once before storing and after storing at different intervals.

[Results and Discussions]

The early acid values (diene and p-anisidine) of raw soybean flour increased at high temperature than at refrigerated and room temperature during 48 and 12 to 36 weeks respectively. In case of roasted soybean flour stored at refrigerator and room temperature, the acid and conjugated diene value increased from 24 weeks gradually. Also unlike raw soybean flour, the peroxide value tends to increase from 24 weeks. p-anisidine value also increased from 12 to 36 weeks, but was much lower than when stored at high temperature. As the peroxide value began to decrease, the p-anisidine value began to increase. Especially, p-anisidine value increased much more when compared to raw and roasted soybean in other storage conditions. This is consistent with the oxidation mechanism of lipid. Lipoxigenase activity of roasted soybean flour in all storage conditions was lower than raw soybean flour. Changes were also observed between the packing materials used. Thus, this study could provide useful information for industrial use of soybean flour and be used as a basis for the development of prevention and delayed technology of rancidity.

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