

## B-75 Preparation of a non-meat sausage

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This study was designed to develop a non-meat type sausage product by using texturized vegetable protein (TVP), carrot, potato, kohila (*Lasia spinosa*), different types of binders (corn flour, wheat flour, eggs and seasonings).

The sausage prepared by using banana pod flower with vegetables and kurakkan flour as binder was not accepted by consumers due to the poor colour. Avoiding that poor colour, formulation made with rusk, soy flour as binders was also not accepted by consumers due to odd flavour. Later developed sausages containing rice flour, rusks was also not accepted by consumers due to poor binding quality. In order to improve the binding ability, rice flour and rusk were substituted with eggs, corn flour and wheat flour in the final formulation. Composition of the final non-meat sausage was 26% TVP, 7% potato, 4% carrot, 5% kohila, 20% eggs, 4% binders, 10% vegetable fat 1% salt, 2% spices & 300ml of water. This final formulation was accepted by the taste panel and was used for further analysis.

A non-trained taste panel was conducted on the day of preparation and the sensory quality characters such as appearance, colour, texture, taste, juiciness and general acceptability of sausage were evaluated using non vegetarians (meat eaters) and egg vegetarians. Higher scores were given by egg vegetarians for quality characters such as colour, appearance, taste, texture and general acceptability than non vegetarians. But both non vegetarians and egg vegetarians have given lower scores for juiciness.

The objective quality measurements as pH, cooking loss, water holding capacity, TBA values were taken at regular intervals of 1 week, 4 weeks of storage period at  $-11.3^{\circ}\text{C} \pm 2$  and  $7^{\circ}\text{C} \pm 3$  respectively. The pH of the samples decreased from 7.01 to 6.31 and 6.98 to 4.18 during storage at  $-11.3^{\circ}\text{C}$  and  $7^{\circ}\text{C}$  respectively. The reduction of the pH values may be due to the fermentation action by lactobacilli, *Enterococci* and related organisms. Fermentation results in the utilization of lactose and other sugars by the organisms with the production of acids such as lactic acid. At  $-11.3^{\circ}\text{C}$ , cooking loss of samples decreased up to the third week and thereafter it increased. Reason for decrease in cooking loss may be the less deterioration of product at lower temperatures and possible cause for increasing in values may be the hydrolysis of soluble pectin polymers forming polygalactouronic acids and other monomers during storage. The water holding capacity is increased during storage, but not significantly up to the second week, then decreased up to the third week and again decreased. The decrease in WHC may be due to denaturation of egg protein, where the egg white protein becomes watery and loses the ability to hold water. Increase of WHC may be due to absorption of water by TVP and starches and conditioning of sausages. TBA values of sausage samples increased significantly ( $p < 0.05$ ) from 0.93 to 4.54 and 1.02 to 4.92 at  $-11.3^{\circ}\text{C}$  and  $7^{\circ}\text{C}$  respectively. That may be due to the oxidation of unsaturated fatty acids in vegetable fat and eggs.