Thesis Title Study on Formulation of Dietary fiber-Enriched Bread Containing Soybean Hulls

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ABSTRACT

Soybean hulls (SBH), a waste product from the soybean industry, were used as source of dietary fiber in the formulation of dietary fiber - enriched breads product. Soybean hulls were prepared by first separating contaminated matter and then grinding them. The SBH was size separated as large size (larger than 60 mesh), medium size (60-100 mesh) and small size (smaller than 100 mesh).

When the SBH was used to substitute wheat flour in preparing bread products, it was found that the maximum quantity which could be substituted was 15 % by weight.

Physical properties of breads containing 10-15 % of wheat flour as large, medium, and small size SBH were determined. As the amount of

SBH in breads increased, the loaf volume of breads decreased. From the preliminary sensory evaluation, the panel preferred 10 % dietary fiber-enriched bread made with large size particles, however, the 15 % flour replacement bread was still acceptable.

Preparation of dietary fiber-enriched breads by addition of water (5-10 % flour basis) to the formula increased loaf volume but could not improve overall acceptability. Addition of 4-8 % shortening to the dough system improved loaf volume and overall acceptability whereas addition of 0.5-1.0% sodium stearoyl - 2- lactylate (SSL) to the dough system yielded high loaf volume than addition of 0.5-1.0 % lecithin. Moreover, the product containing 0.5 % SSL was most acceptable.

The consumer sensory evaluation of dietary fiber-enriched breads, including open top and sandwich bread in SBH-natural and SBH-chocolate flavor containing 15 % flour replacement with large size SBH showed that the panel accepted both products. Moreover, all dietary fiber-enriched bread products contained more total dietary fiber when compared with each control.