C-11: Development and quality evaluation of an aerated soaked process for production of mung bean dhal

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Mung bean is a relatively inexpensive protein source with high food value, but the digestibility reduces when whole seeds are consumed without removing the seed coat. Therefore, a study was undertaken to minimize the cooking time and improve the appearance by developing a process to remove the seed coat.

Objectives: To develop a suitable processing method to dehull the mung bean. To determine the effect of soaking duration and germination on milling quality of mung bean dhal. To improve appearance and taste of mung bean dhal.

The raw mung bean samples were first heat treated in hot water at 60 ^{0}C for 2 min. Then they were subjected to aerated soaking. These samples were germinated.

Germinated samples were then dried by an artificial drier until seeds became rubbery in texture. Dried samples were tempered. Finally the samples were milled using a "Satake rice miller" Milling quality was evaluated by damaged cracked and unhulled percentages of dhal. Eating quality was evaluated by sensory evaluation. (By quality parameters of appearance, colour, texture, taste, and general acceptability of product), Nutritional quality was evaluated by chemical analysis of protein, fat, minerals (ash) and moisture.

Heat treatment accelerated water uptake of mung bean by improving seed coat permeability to water. This decreased the soaking time.

Aerated soaking prevents fermentation by maintaining aerobic conditions, thus increasing the milling quality output by approximately 92 and 95% for 10 to 12 h of soaking as compared to 80% after 9 h or soaking.

The milling quality and colour of product. improved with germination times from 0 to 4 h. If germinated for more than
4 h the colour decreased.

Sensory properties of the product improved with increasing aerated soaking time. The scores for general acceptability ranged from 5.271 to 4.354 for soaking durations of 12 to 9 h.

Aerated soaking process did not have a considerable effect on reducing the nutritional value of mung bean dhal. Thus the % protein, fat. ash and moisture were not effected by this process.

Results showed that by extending the aerated soaking time the milling and eating quality of mung bean can be increased. This also promotes the initial stages of germination which controls the colour of product.

However the percentage of protein decreases with excessive soaking and germination time.

Heat treatment is essential in this process to break down seed coat dormancy and to improve permeability to water.