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Formulation of a nutritionally superior and low cost soup mix powder using sprouted green gram and soya as major sources of protein

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This study was conducted to develop a nutritious instant soup mixture with legumes (Sprouted green gram and Soya bean) and cereals (red raw rice) and dehydrated vegetables (Pumpkins, Mushrooms, B onions, Tomato, and Gotukola). Germination or malting of legumes improves the availability of minerals, reduce the anti-nutritional factors, enhances some of the vitamins and improves the overall nutritive values. Therefore malted (sprouted) green gram is an ideal source of protein rich material for blending with Soya, Rice and Vegetables to prepare a nutritive blend for use as a soup mix. Preliminary studies were conducted to select the best composition of vegetables and food grain sources in the soup mixture. Sensory evaluation was used to evaluate the quality parameters; color, aroma, taste, consistency and overall acceptability by 30 untrained panelists. Results were analyzed by using the Minitab statistical software package to select the best formula from the above combinations.

The proximate chemical analysis was conducted for the best soup formula. The storage stability of the developed soup mixture in the package (PE/AL/PE) was evaluated in terms of water activity, moisture content, colour changes and microbial quality at three week intervals for twelve weeks. The data on rank sum difference test revealed that this soup mixture containing dehydrated powders of 50% vegetable, 40 % food grain and 10% other variables (which includes 15% Pumpkin, 15% Mushroom, 10% B- onion, 7% Tomato and 3% Gotukola, 15% Sprouted green gram, 15 % Soya bean, and 10 % Red rice and 3% Curry leaves, 4% Corn flour, 2% salt and 1% pepper) was the best among the four mixtures evaluated. The selected mixture contained a considerable amount of crude protein, crude fat, crude fibre, total ash and starch amounting to 19.44, 4.80, 14.04, 11.48 and 45.10 respectively. This higher protein level is mainly due to soybean, and sprouted green gram. Also this soup mixture contains considerable amounts of other nutritional components. Therefore this soup mixture could be called a well-balanced nutritious food. During the storage period of 12 weeks, the moisture content, water activity and colour of the dried soup mixture have changed but not significantly. The total colony forming units (CFU) was below the recommended level. The ingredient cost for the preparation of one cup of soup was found to be Rs. 2.25.

Keywords: Sprouted green gram, Instant soup mixture, Water activity, Microbial quality