STUDY ON STORAGE QUALITY OF RICE AND WHEAT FLOUR 1:4 MIXTURE

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Rice (*Oryza sativa l.*) is the staple food and paddy farming is the main source of employment for the majority of the rural population in Sri Lanka. There is a high tendency of using rice flour in bakery products due to high price of wheat flour. Rice and wheat flour 1:4 mixture is the reference mixture used to substitute 25% of wheat flour in the bakery industry. Normally rice flour is stored using polypropylene bags under ambient conditions. But there is a lack of reliable recorded storage studies on this mixture. Therefore, this study was conducted to determine most suitable packing material with appropriate storage condition for rice and wheat flour 1:4 mixture. Two packing materials i.e. LDPE (low density poly-ethylene) and PP (polypropylene) with two storage conditions as ambient and refrigeration were employed as treatment with three replicates per each treatment. Each replicate was 500 g of rice and wheat flour 1:4 mixture stored in these bags. The shelf life of the flour mixtures was determined based on proximate analysis, the acceptability of the mixture before storage was compared with other flours (rice flour and wheat flour) using a sensory evaluation. Storage behaviour was investigated by measuring of moisture content, ash content, protein content, oil content, crude fiber content, water absorption capacity, oil absorption capacity, acid value and mould infestation during storage period of 6 weeks at two-week intervals. The results were analyzed using SAS and the results of sensory evaluation were analyzed with MINITAB package. Results revealed that there was no significant ($\alpha = 0.05$) effect of type of packaging material and storage conditions on water absorption capacity of flour mixture during storage time. But moisture, total ash, total protein, fat, crude fiber contents, acid value, oil absorption capacity and total plate count of the flour mixture were significantly different ($\alpha = 0.05$) with packaging

materials and storage conditions. Fungal infestation was observed in all the packages during the entire storage period but it was low in PP and LDPE under refrigeration condition. LDPE is the best packaging material that could be used under refrigeration and ambient conditions to store rice and wheat flour 1:4 mixture without quality.

Key words: Reference mixture, Packaging materials, Storage conditions