

Storage Studies of Malpua Ready Mix Powder Incorporated with Kachkal Flour

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Abstract—*In this study instant mix powder for malpua was prepared from finely grounded wheat flour (Maida) and semolina blended with banana flour to enrich it with fiber and minerals. The obtained mix was studied for proximate composition, sensory evaluation and storage stability. The obtained product was rich in carbohydrates, proteins, fiber and also found to be a good source of minerals. The suitability of various isotherm models was tested on the equilibrium moisture uptake data. The experimental data of sorption were fitted by five different models i.e. GAB model, Iglesias-Chirife model, Oswin model, Peleg model and Smith model. From the determination coefficient and chi square values Peleg model and GAB models was found to be the best fitted model. The malpua mix had a critical moisture content of 8% (db) which equilibrated at 75% RH which shows the powder is moderately hygroscopic. The value of monolayer moisture content of GAB model indicates the amount of water that is strongly adsorbed to specific sites at substrate surface and is considered as the optimum value to assure stability of material. It is the moisture content to assure minimum quality loss at storage temperature. For the formulated instant mix malpua powder the value obtained is 6.739% (db). The value of K of GAB model of the formulated product was 0.017 which provides a measure of the interactions between the molecules in the multilayer with the adsorbent and tends to fall between the energy values of monolayer and liquid water. The value of K was within the recommended range ($0 < K \leq 1$) which implies that the water molecules of the multilayer are well-bound to the system which is quite desirable.*

Keywords: *Instant malpua mix, sorption isotherm, GAB Model, Peleg model, monolayer moisture content.*