EFFECT OF TEMPERATURE, ENRICHMENT AND BHT INCLUSION ON THE PHYSICAL PROPERTIES OF SOY-MELON GARI - A PROTEIN ENRICHED CASSAVA PRODUCT

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The effects of Temperature, legume protein enrichment and anti oxidant (BHT) inclusion on the physicochemical properties of soy melon gari, a fermented and toasted cassava semolina were studied. Samples of the protein-enriched gari were produced by toasting gari together with the soy-melon supplements. They were packaged in Woven sack and HDPE Film and stored under three different temperatures of 10 ± 2, 30 ± 2, and 40 ± 2°C. A sample without any enrichment was used as a control. Samples were withdrawn at 4 weeks interval to measure changes in their physical properties during storage. The swelling index increased from 4.0 to an average of 4.9, 4.82, and 4.42 v/v for 20, 30 and 40°C. There was an initial decrease in the reconstitution index followed by a general increase in all the samples with storage. Wettability was not affected at the lower temperatures of 20 and 30°C but at 40°C it increased significantly (p < 0.05) after 16 weeks of storage from 120 seconds to a range of 125 - 130 seconds by the 32nd week of storage. The bulk density was reduced from 0.68g/dm³ to a range of 0.58 - 0.62 g/dm³. The samples exhibited marginal decrease in values at higher temperatures for both the supplemented and control samples. Swelling index was decreased with enrichment. Enrichment reduced the ability of soy-melon gari to imbibe water. Its reconstitution index reduced from a range of 4.2 -6.6v/v for the control sample to a range of 4.0-5.2v/v for the enriched sample. It increased significantly (p < 0.05) the wettability from 30 seconds for control samples to 120 seconds for the enriched samples. Enrichment resulted in higher values of packed densities than the control samples. Increasing from a range of 0.56-0.58 for the control to a range of 0.58-0.67 for the enriched samples. Similarly for the loosed bulk density. Addition of antioxidant (BHT) had no significant effect on the physical properties of soy-melon gari while enrichment resulted in decrease in the ability of gari to swell and imbibe water, temperature did not show consistent effect on the physical properties with increase in the storage period.