Effect of Germination on Functional Properties of Flour from Some Sorghum (Sorghum biocolor L. Moench) Varieties Grown in Saudi Arabia

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Abstract

Three sorghum varieties (Hamra, Shahela and Baidh) obtained from grain market in Jizan region (South-West Saudi Arabia), were used in this study. The grains were soaked in distilled water overnight (12 H) at room temperature (25-30°c) then germinated for 5 days at room temperature (25-30°c) in the dark . The raw and germinated sorghum samples were dried to constant weight in an air oven at 70°c, then collected and milled into fine flour in a mechanical mill. The functional properties of the germinated and ungerminated seed flour were investigated. The functional properties investigated were water and oil absorption, foaming properties, protein solubility and emulsion capacity and stability. The investigation indicated that there is a decrease in the water absorption and increase in oil absorption for all germinated sorghum varieties comparison with ungerminated grains. The protein solubility profile indicated that the minimum solubility was at a pH of about 4.0, and the maximum was at a pH of about 9.0, where as the solubility of the protein increased due germination at all the pH values. Germination process improved emulsion capacity, emulsion stability, foaming capacity and foaming stability of sorghum flour in comparison with that of raw flour.