EFFECTS OF HONEY AS SUBSTITUTE FOR SUGAR ON RHEOLOGICAL PROPERTIES OF DOUGH AND PHYSICAL PROPERTIES OF CASSAVA-WHEAT BREAD

1Joan M. Babajide, 2Adedola S. Adeboye, and 1Taofeek O. Shittu
1Department of Food Science and Technology, University of Agriculture, Abeokuta, Nigeria.
2Department of Food Science and Technology, Moshood Abiola Polytechnic, Abeokuta, Nigeria. Email: jmbabajide@gmail.com

Abstract
The effects of partial substitution of sugar with liquid honey on some rheological properties of dough made from cassava-wheat (10:90) flour and the physical properties of its bread were investigated. Sucrose sugar (S) in the bread recipe formulation was substituted with honey (S) at levels 0, 10, 20, 30, 40 and 50%, respectively to give 6 treatments namely 0H:100S, 10H:90S, 20H:80S, 30H:70S, 40H:60S and 50H:50S. Farinograph analysis was performed on the dough. The weight, volume, moisture content, density, porosity, softness and colour indices of the bread loaves were determined. There was no significant difference (P>0.05) in the water absorption (60.6 - 62.5%) and valorimeter score (46.9 – 52.0%) for all the dough samples, 50H:50S had the highest dough development time (2.5 min) which was significantly (P<0.05) higher than others (2.0-2.2 min). The dough stability increased from 3.6 min in control (0H:100S) to an optimum 12.5 min in 20H:80S and 30H:70S. There was no significant difference (P>0.05) in loaf weight (290.04-310.04 g) but loaf and specific volume varied significantly (P<0.05) from 1218.51 to 1642.93 cm³ and 4.1 to 5.4 cm³/g, respectively with 30H:70S having the highest value. Bread crumb moisture and density increased (30.41-36.15% and 0.17-0.32 g/cm³), respectively while the porosity decreased from 0.90 to 0.84 as the level of honey inclusion increased. The study concludes that substitution of sugar with honey in dough formulations did not significantly (P>0.05) affect dough handling properties. Sucrose sugar substitution with honey at 30% could be recommended for cassava-wheat composite bread making.