

Formulation and Quality Analysis of Palmyrah (*Borassus flabellifer*) Pulp Based Bread Spread

R.Vithujan^{1*}, A.Y.L. Fernando¹, and S. Mahilrajan²

¹Department of Food Science and Technology, Faculty of Applied Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka.

²Palmyrah Research Institute, Kaithady, Jaffna, Sri Lanka.

*rvithu26@gmail.com

A bread spread was developed using palmyrah as the base. The product was formulated with four different treatments by changing the amount of palmyrah fruit pulp and cocoa powder as ingredients. The final formula was selected through a sensory analysis with 30 untrained panellists. The final selected formula has pH 5.79 ± 0.02 , water activity 0.72 ± 0.00 , moisture content $36.08 \pm 0.77\%$ and Titratable acidity 0.03 ± 0.00 g citric acid/100ml. The final selected formula has included 52.5% pulp, 25% peanut, 2.5% cocoa powder, 15% sugar and 5% coconut oil. Different packing materials such as polythene, Polypropylene cup and glass bottle were tested for the storage of the bread spread. In comparison to the polythene and Polypropylene cup, the glass-bottled sample performed better after a week of storage indicating 6.19 ± 0.00 , 30.47 ± 0.35 , 0.73 ± 0.00 , 43.66 ± 0.52 and 0.02 ± 0.00 , respectively, for pH, TSS (brix), water activity, moisture (%), and Titratable acidity (g citric acid/100ml). The Bread spread with preservative could store at room temperature for three weeks and significantly different pH of 5.64 ± 0.01 , TSS of 56.60 ± 0.10 , Titratable acidity of 0.02 ± 0.01 g citric acid/100ml, water activity of 0.73 ± 0.00 , and moisture (%) 45.65 ± 0.00 were recorded for the samples in compared to the samples that did not contain preservatives. Bread spreads prepared with white sugar has moisture (%), protein (%), fat (%) and ash (%) contents of 44.79 ± 0.01 , 8.66 ± 0.02 , 12.70 ± 0.01 and 0.76 ± 0.00 respectively. Furthermore, the spread contained reducing sugar 46.69 ± 0.01 mg/100mg and minerals of Ca 12.47 ± 0.06 mg/100g, Mg 72.30 ± 0.05 mg/100g, Na 1.09 ± 0.01 mg/100g and K 1.00 ± 0.01 mg/100g. The Bread spread formula, in which white sugar was replaced with palmyrah treacle, showed significant differences in the moisture $43.29 \pm 0.15\%$, protein $9.88 \pm 0.02\%$, fat $14.30 \pm 0.02\%$, ash $1.25 \pm 0.01\%$, reducing sugar 35.30 ± 0.00 mg/100mg and minerals of Ca 47.50 ± 0.10 mg/100mg, Mg 92.40 ± 0.38 mg/100mg, Na 0.39 ± 0.00 mg/100mg and K 1.42 ± 0.01 mg/100mg in compared to the control sample that did not contain palmyrah fruit pulp.

Keywords: Palmyrah, Bread Spread, Quality Analysis