Effect of Clarification on Quality of Palmyrah Toddy

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Abstract

Palmyrah toddy, is cloudy, whitish sap, obtained by tapping, and fermented spontaneously with wild yeast. Nevertheless, the availability of the toddy is seasonally limited, therefore it is pasteurized and sold during the off-season by Palm development societies situated in the Northern and Eastern parts of Sri Lanka. Throughout the storage period of the toddy, the suspended particle in the toddy and yeast, accumulate, from turbid and then sediment on the bottom of the bottle. Therefore, this research was designed to eliminate the suspended particle, to improve the quality of Palmyrah toddy via increase the clarification using different filter materials. Palmyrah toddy sample was obtained from the palm development cooperative society (Kaithady, Jaffna, Sri Lanka) and allowed for prolonged (22 hours) natural fermentation under the ambient laboratory conditions (28±2°C). It yielded the highest percentage of alcohol (%) 4.6±0.05 and total acidity (g/mL) 0.36±0.01, turbidity (NTU) 3475±11, Brix value 4±0.05, pH 3.72±0.02, total solids (g/100 ml) 2.1±0.00, TPC (CFU/mL) 93×102, Yeast and mold (CFU/mL) 41×106. Clarification of toddy carried out by pre-filtration set-up using cotton wool revealed that of results were significantly ($p<0.05$) different and showed alcohol (%) 4.3±0.05 and acidity (g/mL) 0.4±0.00, turbidity (NTU) 1264±6, Brix value 4±0.05, pH 3.74±0.02, total solids (g/100 mL) 3±0.08, TPC (CFU/mL) 11×102, Yeast and mold (CFU/mL) 21×106. Followed by Silicon-Sand (8cm height) filtration results were 4.2±0.05 % 0.05(±0.015) g/ml, 830±10 NTU, 4.2±0.1, 4.86±0.02, 1.7±0.08 g/100 mL, TPC (CFU/mL) 6×102, Yeast and mold (CFU/mL) 11×106 respectively. Subsequently, toddy was filtered by using optimized treatment as heated toddy, without charcoal and under vacuum which resulted, in alcohol (%) 4.0±0.05, acidity (g/mL) 0.12±0.01, turbidity (NTU) 833±6, Brix value 3.7±0.1, pH 4.87±0.01, total solids (g/100 mL) 2.2±0.08, TPC (CFU/mL) 7×102, Yeast and mold (CFU/mL) 7×106. Probably, the filtration method with cotton wool pre-filtration and Silicon-Sand helps to reduce microbial load, turbidity in toddy, leading to an increase in the marketing of limpid and satisfying consumer expectations. Not only that it increases the earnings of the societies and leads to an increase in the national income.

Keywords: Clarification, Cotton wool, Palmyrah, Toddy, Turbidity

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