Characterization of sugar from Arenga pinnata and Saccharum officinarum sugars

ABSTRACT

The study was carried out to characterize the physicochemical properties, antioxidant activities and the volatile compounds of sugars from Arenga pinnata and Saccharum officinarum. Refined cane sugar exhibited the highest L* value, whereas jaggery powder showed the lowest L* value ($p < 0.05$). The solubility ranged from 99.18% to 99.57%. The proximate composition and chemicals properties were significantly ($p < 0.05$) varied among different sugar samples. The highest moisture content (4.11%), crude fat (0.11%), crude fiber (0.02%) and reducing sugar (9.31%) were found in aren sugar. Highest amount of ash content (1.19%), crude protein (0.28%), titratable acidity (0.50%) and vitamin C (6.62 mg/100 g) were found in jaggery powder. As control, refined cane sugar contain significant amount of carbohydrate (99.95%), total soluble solid (90.00 °Brix) and water activity (0.55 aw). The pH values of all samples ranged from 4.14 to 6.65. The maximum DPPH radical scavenging activity and TPC were found in jaggery powder with values 4170 µg of GAE/g and 46.98% respectively. The volatile compounds detected were 5-hydroxymethylfurfural,2,3-dihydro-3,5-dihydroxy-6-methyl-4H-pyran-4-one, aminoacethydrazine, hydroxyacetic acid, hydrazine, acetic acid, [S-(R*, R*)]-2, 3-butanediol, 2, 3-dihydro-3, 5-dihydroxy-6-methyl-4H-pyran-4-one and 6-acetyl-á-dmannose. The quality data from this characterization can be used to indicate the standard of A. pinnata and S. officinarum sugars**.**

Keyword: Aren sugar; Jaggery powder; Arenga pinnata; Saccharum officinarum; Characterization