

STUDY ON AUTHENTICATION OF PALMYRAH JAGGERY USING CHEMICAL TESTS

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ABSTRACT

Palmyrah jaggery industry is one of the ancient and large cottage industries in northern Sri Lanka. There is increasing consumer demand for jaggery due to its health promoting factors such as rich nutrient content and low glycemic index. Nevertheless, it is adulterated with substances like refined sugar and rice bran in order to increase the profit margin. Authenticity of jaggery is questionable in the market since there is no simple analytical methods exist to detect adulterations. This study focused to identify the authenticity of Palmyrah jaggery using chemical tests. Samples of genuine jaggery and jaggery adulterated with different levels of sugar and rice bran were prepared in triplicates. Samples were subjected to analysis of acidity and contents of sulfated ash, reducing sugar, non-reducing sugar, total ash and materials insoluble in water. Genuine jaggery had significantly higher contents of total ash (3.25 ± 0.52 - $3.44\pm 0.10\%$), matter insoluble in water (1.29 ± 0.07 - $1.21\pm 0.7\%$) and Acidity as acetic acid (0.14 ± 0.03 - $0.18\pm 0.03\%$) as compared to adulterated sample. Reducing sugar and non-reducing sugar contents of genuine jaggery were in the range of $2.74\pm 0.12\%$ - $5.16\pm 0.34\%$ and $77.1\pm 0.50\%$ - $82.2\pm 0.56\%$ respectively. Adulteration of jaggery with different percentage of refined sugar influenced on reducing and non-reducing sugar contents. Reduction in reducing sugar content and increase in non-reducing sugar content were observed in jaggery samples with the increase in adulteration of them with refined sugar. Sulfated ash content of genuine jaggery (3.46 ± 0.53 - $3.65\pm 0.35\%$) was significantly higher than that of adulterated jaggery (3.14 ± 0.36 - $0.32\pm 0.04\%$). It can be concluded that acidity and contents of sulfated ash, reducing sugar, non-reducing sugar, total ash and materials insoluble in water can be used as reliable parameters for authentication of Palmyrah jaggery.

Key Words: Jaggery, Palmyrah, Adulterations, Sulfated ash, authentication