

Study on physicochemical properties of selected edible oils available in Sri Lankan local market

R.V.C. Madushani, K.A.S.M. Sandarekha, W.A.J.P. Wijesinghe, N.E. Wedamulla* and H.J.K.S.S. Wijerama

Department of Export Agriculture, Faculty of Animal Science and Export Agriculture, Uva Wellassa University of Sri Lanka

Abstract

Olive (OO), sunflower (SO) and palm oil (PO) are three different types of highly demanded oils available in Sri Lankan local market with multivariate functions. The present study aimed to evaluate the quality parameters of randomly picked oil samples in Sri Lankan local market at the time of purchasing. Ten brands (Three brands of OO, three brands of SO and four brands of PO) of oil samples were purchased from local market. Specific gravity, viscosity, color, free fatty acid (FFA) and peroxide value (PV) of all the oil samples were measured. PV and FFA of OOs were ranged from 7.47 ± 0.95 meq/kg to 4.47 ± 0.23 meq/kg and $0.52 \pm 0.11\%$ to $0.38 \pm 0.05\%$, respectively. Thus, the recorded PV values are complying with the SLS standards and FFA values are not in some brands (1591:2018) (maximum FFA as oleic acid: 0.3% and maximum PV: 10 meq/kg). Specific gravity and color of three brands of OO were significantly different ($P < 0.05$) while viscosity was not ($P > 0.05$). PV and FFA values of SO were ranged from 14.80 ± 3.02 meq/kg to 7.67 ± 0.70 meq/kg and $0.86 \pm 0.30\%$ to $0.53 \pm 0.11\%$ respectively. The recorded PV values of some brands in SO are comply with the SLS standards (946:2018) (maximum FFA as oleic acid: 0.25% and maximum PV: 10 meq/kg) and PV values of other brands and all FFA values are not. Specific gravity, viscosity and color of three brands of SO were significantly different ($P < 0.05$). PV and FFA of PO were ranged from 0.36 ± 0.12 meq/kg to 0.25 ± 0.02 meq/kg and $11.13 \pm 1.43\%$ to $7.07 \pm 0.69\%$ respectively. Thus, the recorded PV and FFA of some brands are comply with the SLS standards (720:2016) (maximum FFA as palmitic acid 0.25% and maximum PV: 10 meq/kg). Within the three brands color and specific gravity of PO significantly different ($P < 0.05$) and viscosity was not ($P > 0.05$). In conclusion, physicochemical parameters of some brands in three different oil types are comply with the SLS standards and also show significant differences within the brands.

Keywords: Edible oil, Free fatty acid, Peroxide value, Physicochemical property

***Corresponding author:** nishala.erandi@yahoo.com

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