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### **Investigation of the quality of coconut oil available at retail and wholesale shops in the coconut triangle**

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There is an opinion that coconut oil sold at the market is adulterated with other cheaper vegetable oils. Quality of coconut oil can deteriorate due to improper handling of raw materials and storage conditions. The objective of this study was to determine the quality of coconut oil available at retail and wholesale shops in Kurunegala, Colombo and Puttalam districts. Coconut oil samples were collected using simple random sampling from wholesale and retail shops. Samples were collected from 10 wholesale shops and 33 retail outlets which included 12 from Colombo, 12 from Kurunegala and 9 from Puttalam districts. Quality parameters were assessed by determination of moisture, free fatty acids (FFA), peroxide value, relative density, refractive index (RI) and colour using SLS standard methods and compared with Sri Lankan Standard values. Three replicates from each sample was carried out. Adulteration was determined by the iodine value (SLS313: Part 2-Section 2:2009). The iodine value (IV) of the samples varied from 6-49 and the 40% of the samples collected from wholesale shops exceeded recommended level of IV (more than 11 ) indicating that the 40% of samples were adulterated. Further, 60% of samples collected from retail shops were adulterated while 92 % of samples from the Colombo District were adulterated. Results showed that 36% samples from retail shops and 20% samples from wholesale shops exceeded the limit for FFA (0.8% as lauric acid). Formation of peroxide was observed in 60% of samples collected from wholesale and 78% from retail shops. High moisture contents than the SLS limit of 0.4% were observed in 30% from wholesale and 33% in retail shops. Colour of 51% from retail shops were higher than the limit of 4. However, RI of all samples from the wholesale and retail shops were higher than the limit of 1.4492. Relative density of 44% from retail and 70% from wholesale were within the limit. Quality of most coconut oil samples collected from the retail and wholesale shops in Kurunegala, Colombo and Puttalam districts did not comply with the Sri Lankan Standards for Coconut oil 32:2002.

Keywords: Coconut oil, adulteration, quality, iodine value, peroxide value, free fatty acids