Analysis of Selected Quality Parameters for Edible Coconut Oil Samples Produced in Jaffna District

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Abstract

Saponification value, refractive index, iodine value, free fatty acid value and insoluble impurities are important parameters used as indicators in the coconut oil quality determination. This study was conducted to measure the above quality parameters of locally produced edible coconut oil in Jaffna district. Ten processing centers (66% of total number of processing centers) were selected randomly from seven divisional secretariats area in Jaffna district. Two freshly extracted oil samples were collected in two different time period from each processing center. All parameters of the samples were determined according to Sri Lanka Standard (SLS) 313 procedure and the results were compared with Sri Lanka Standard 32: 2002. According to the SLS 32:2002, the ranges of saponification value, refractive index (at 40℃), iodine value, free fatty acid (as lauric acid) and insoluble matters of good quality coconut oil should be 248-264 mg KOH/g, 1.4480-1.4492, 7.5-11.0, less than 0.8 percent by mass and less than 0.05% respectively . The results of this study show that free fatty acids value of all samples complied with the SLS standard. Oil samples from five processing centers only contained the acceptable level of insoluble impurities. Saponification value, refractive index and iodine value of all samples except one, met the standards. Samples obtained from four processing centers (40 %) contained the acceptable values for all five quality parameters. Samples from one processing center had 14 and 0.04 % higher saponification value and refractive index respectively while samples from one processing center had 20% lower iodine value than the standard. The higher insoluble impurities (8-20%) were observed in five processing centers than the standard. Results of this study show that most of the coconut oils produced in Jaffna district need some modification or improvements in processing methods to meet the quality standards specified in SLS.

Keywords - Free fatty acid value, Insoluble impurities, Iodine value, Refractive index, Saponification value