
Investigation of possible adulterations in coconut oil sold in the local market

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Adulteration of coconut oil, the most commonly used edible oil in Sri Lanka, is a serious issue, which has a severe impact on the health condition of the consumers. However, very few scientific studies have been conducted on the status of adulteration of coconut oil available in the local market. This study was focused to assess the quality and possible adulterations of coconut oil samples collected from the local market in the Southern province of Sri Lanka. First, physical and chemical quality parameters of the coconut oil samples were determined and then the qualitative determination of possible adulterants was performed. A survey was conducted using a structured questionnaire to investigate the factors that locals consider when buying coconut oil and evaluate the level of their awareness about the adulteration. According to the preliminary analysis performed for 15 coconut oil samples collected it was found that several samples were having unacceptable levels of saponification value (up to 283 mg KOH/g), acid value (up to 5.35 mg KOH/g) and peroxide value (up to 4.26 mequiv. of peroxide oxygen /1 kg of oil) based on local and international standards. Qualitative tests performed revealed that there were no detectable amounts of castor oil, mineral oil, argemone oil, rice bran oil or cottonseed oil present in any of the coconut oil samples. However, after a thorough thin layer chromatographic analysis performed, it was found that 5 out of 15 samples collected were adulterated with palm oil. These 5 samples with suspicious palm oil adulteration were selected to further analyze using FTIR and GC-MS. It was observed that FT-IR data were inconclusive to detect palm oil in coconut oil. The GC-MS results are pending and will be reported in due course. The customer survey results revealed that possible adulterations is among the key factors considered by customers in purchasing coconut oil in the context of Sri Lanka.

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