ABSTRACT

A critical area of focus and study within the realm of human nutrition revolves around the assessment and investigation of the quality of edible oils. In the present studyphysical and chemical characteristics, various extraction processes, fatty acid profile andantioxidant properties of six commercially available Canola oil (SSC, SC, KC, EC, SFC and KSC) and six varieties of raw canola oil (Sarson, Super, AARI, Sandal, B- Napus Roohi and B- Napus Shiralee) were analyzed to create awareness for consumers. Theseeds were collected from AARI Faisalabad and NARC Islamabad and oil was extracted from them for further analyzed their characteristics. Seed variety AARI extracted by using the soxhlet apparatus has shown the lowest yield (16%), while the highest oil yield(33%) was observed in Sarson canola. After analysis it was observed that soxhlet method is highly recommended method at laboratory scale as it gives high yield. The qualitative test of refined samples for vitamin A as claimed by companies, the presence of high vitamin A occurred in only found in SFC. All samples of refined canola oil show higher variations when compared with PSQCA such as results revealed that oil sample coded KSC partially met the specified criteria for parameters such as acid value (0.01mgKOH/g), Smoke Point (235°C), Flash Point (325°C), Color (20Y, 0.1R), free fatty acids (0.1%), iodine value (120.65 I2/100g oil), and viscosity (0.5696cp) respectively. The peroxide value of oil samples includes SSC, SC, EC, SFC and KC is higher than the recommended values. The moisture content of super, B-Napus roohi and B- Napus shiralee shows (7.7%, 2.75% and 0.86%) respectively also above the limits. The Saponification value of super and KC (157.9mg KOH/g and 140.25%) is below the specified criteria. The fatty acid profile of refined sample SSC indicates there is no adulteration in oil and it contains high PUFAs which considered good for human consumption. On the other hand, Super canola seeds collected from AARI Faisalabad and extracted by using Soxhlet apparatus show poor variations among all varieties. Sarson canola collected from NARC Islamabad and extracted through cold press apparatus indicated fewer variations in results and considered as high quality raw canola oil.

Key words: Vitamin A, Soxhlet, Antioxidant, Sarson canola, Peroxide value, Canola oil