

QUANTIFICATION OF PHENOLIC CONTENT AND EVALUATION OF OXIDATIVE STABILITY OF SESAME (*Sesamum indicum*) OIL

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Oxidation of edible oils leads to generation of a wide array of undesirable compounds which are detrimental to health and also negatively affect on shelf life. Different chemical mechanisms such as autoxidation and photo-oxidation are responsible for the oxidation of edible oils during processing and storage. Sesame oil is one of the healthiest oils that possesses number of beneficial effects. This study evaluated the oxidative stability of sesame oil in comparison with canola and olive oils. The stability of oils against autoxidation was evaluated by storing oil at an elevated temperature

(60 °C) for 28 days and assessed the level of oxidation by measuring Peroxide value (PV), Thiobarbituric acid reactive substances (TBARS), Conjugated dienes (CD) and Conjugated trienes (CT). The effect of repeated frying on oxidation of oils was evaluated by frying potato chips of standard dimensions in sesame oil three times and assessing the level of oxidation by measuring PV, TBARS, CD and CT. The total phenolic content of sesame phenolics was assessed using Folin ciocalteau's colorimetric method and antioxidant activity of sesame phenolics was evaluated by 2, 2- diphenyl- 1 -picrylhydrazyl (DPPH). The percent rate increment of PV, TBARS, CD and CT were 4.84, 4.35, 1.35 and 0.85 respectively for sesame oil during autoxidation. Comparatively, olive oil showed high oxidative stability followed by sesame and canola, however, the rate of oxidation for canola and sesame oil did not deviate significantly ($p < 0.05$) during autoxidation. During repeated frying, the percent rate increment of PV, TBARS, CD and CT were 13.8, 21.28, 42.34 and 58.05 respectively for sesame oil. The rate of oxidation for sesame and canola oils was not significantly

different ($p < 0.05$). The total phenolic content of sesame oil was 18.55 mgmL and the DPPH radical scavenging activity expressed on IC₅₀ was 0.017 mgmL. **Keywords:** Antioxidant

activity, Autoxidation, Repeated frying, Sesame oil