



CAN ESSENTIAL OILS STABILIZE FRYING OIL?! INSIGHTS TO THE EFFECT OF ESSENTIAL OILS FROM *FERULAGO ANGULATA*, *MENTHA PULEGIUM*, AND *CUMINUM CYMINUM* ON FRYING OIL DURING DEEP-FRYING OF POTATO SLICES

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ABSTRACT

The effect of essential oils (EOs) from *Ferulago angulata* (F), *Mentha pulegium* (M), and *Cuminum cyminum* (C) was considered on oxidative stability of frying oil during frying of potato slices. The EOs were applied in concentrations of 200 and 400 ppm and a mixture sample (140 ppm of each essential oil). Tertiary butyl hydroquinone (TBHQ) was used as a standard at 100 ppm. The efficacy of EOs was evaluated by 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging, and parameters of free fatty acid content (FFA), peroxide value (PV), p-anisidine value (P-AnV), total polar content (TPC), and sensory evaluation during three cycles frying. The scavenging activity of TBHQ was higher followed by M-400, F-400, M-200, C-400, C-200, Mixture, and F-200, respectively. The obtained results from chemical parameters were in agreement with each other and except acidity, the content of PV, P-AnV, and TPC almost in all samples containing EOs were higher than the control during cycles of frying. Sensory evaluation data also showed the superiority of synthetic antioxidant followed by control and EOs. According to the results, EOs had a weak antioxidant effect on frying oil due to their volatility and sensitivity to high temperatures during frying.