



EFFECT OF SUPPLEMENTING YOGURT WITH ESSENTIAL OIL OF LEMON LEAVES ON PHYSICO-CHEMICAL AND RHEOLOGICAL PROPERTIES

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ABSTRACT

Citrus limon is a flowering plant belonging to the Rutaceae family. Citrus fruits constitute one of the main valuable sources of essential oil used in foods and medicinal purposes. This study was designed to investigate the effect of adding the essential oil of lemon leaves in yogurt on its rheological and physicochemical parameters in comparison with potassium sorbate. Five batches of yogurt were prepared with different concentrations of the essential oil (0, 1250, 2500, 3750 µg/ml), one batch was dedicated to potassium sorbate (0.1%). Essential oil of lemon leaves was analyzed by gas chromatography/mass spectrometry (GC/MS), yogurts formulated were analysed by the rheometer. The GC/MS analysis allowed the identification of 27 compounds accounted for total percentage of 99.76%. The two dominant compounds were Limonene (57.96%) and β-pinene (16.29%). The essential oil exhibited an excellent DPPH scavenging activity with a half maximal inhibitory concentration an (IC₅₀) of 2,41± 0,04 µg/ml comparable to that of ascorbic acid with an IC₅₀ of 5,87± 0,75 µg/ml. pH values of yogurts with essential oil were significantly the highest after those of yogurts with potassium sorbate (p<0.05), which improves the acidity stability of yogurts during storage. The thixotropic index recorded for yogurts with essential oil was the greatest (3789 Pa/s for the highest concentration), while that with potassium sorbate was the lowest (2280 Pa/s) compared with the control (3329 Pa/s). The viscoelastic behaviour of the control yogurt and the essential oil yogurts were almost the same, the addition of essential oil did affect significantly the thixotropic behaviour of yogurts (p<0.05).
