
Chemical and biological studies on the essential oils of dill and parsley

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The use of natural sources of food antioxidants is considered one of the most important modern trends. Therefore, this investigation was carried out to select and study the effect of some herbs suitable for this target. The obtained results could be summarized as follows:-1- The results indicated that the dill was characterized with the highest moisture, protein, ether extract, ash ,fiber and essential oil contents being 4.10, 24.6%, 5.27%, 19.05% , 13.75% and 1.59% respectively followed by parsley 3.85, 23.5%, 3.05%, 17.3% , 11.9% and 0.29% respectively. The highest percentage of carbohydrate found in parsley 42.76%, and dill had lower content of carbohydrates 35.74%.2- The physico-chemical properties of dill and parsley essential oils were examined and the following values recorded: specific gravity values at 20o C (0.912 and 0.9720, refractive index at 20o C (1.488 and 1.498), acid values (2.22 and 1.34), ester number (26.2 and 12.4), Saponification values (43.11 and 7.81), optical rotation (+57 and -5), solubility in alcohol (0.5 vol. of 90% ethanol and 5 vol. of 90% ethanol).3- The chemical properties of sunflower oil used in this study were evaluated: refractive index 1.4710, acid value 0.178, peroxide value 0.526, thiberbituric acid 0.029, iodine value 136.24, saponification value 191.39 and unsaponifiable matter 0.18%.4- By GC analysis, the chemical composition of sunflower oil was identified and the fatty acids compositions of sunflower oil were determined. The main saturated fatty acids were myrestic, palmitic and stearic in relative percentage of (0.58%, 7.50%, and 2.58%, respectively comprising 10.66 % of total fatty acids. Moreover, there were two unsaturated fatty acid, i.e., oleic acid and linoleic acid as their percentages were 23.60% and 65.74%, respectively, comprising 89.34% of total fatty acids.5- Stability of sunflower oil during storage as affected by addition of dill, parsley and mixtures (1:1) essential oils at (100, 200 and 300). The changes in refractive index values (RI) ,peroxide value (PV) and thiobarbituric acid (TBA) values of sunflower oil during storage at 60oC the induction period of sunflower oil increased to 12 days by mixed with (100, 200 ppm dill, 100 ppm parsley and 100 ppm mixtures (1:1) essential oils). While, the induction period of sunflower oil increased to 14 days by mixed with (200 ppm BHT, 300 ppm dill, 200 and 300 ppm parsley and 200 ppm mixtures (1:1) essential oils). Meanwhile, the induction period of sunflower oil increased to 16 days (maximum stability) by mixed with 300 ppm mixtures (1:1) essential oils).6- Gas chromatography-mass spectroscopy (GC/MS) for analysis of dill and parsley essential oils results showed that, number of identified constituents of dill and

parsley essential oils were 11 and 9 compounds, respectively, corresponding 99.51% and 98.68% of the structure of these two essential oils, respectively. The numbers of unidentified constituents of dill and parsley essential oils were 2 and 6 compounds, respectively, corresponding 0.49% and 1.32% of the structure of these two essential oils, respectively. The numbers of major constituents of dill and parsley essential oils were one compound (α - phellandrene, 38.88%) and one compound (limonene, 27.87%) of the structure of these two essential oils, respectively.7- Biological evaluated of dill, parsley and mixture of dill and parsley essential oils (1:1) were carried out to study the effect of these essential oils. The important parameter in the blood serum (glucose, TC, TG, HDL, LDL, VLDL, ALT, AST, Creatinine and Uric acid) during experimental period (6 weeks). Meanwhile, glutathione reduced (GSH) and Insulin were check up to the end of experiment.