

A Multivariate Approach for Oxidative Stability and Lipid Profiles of Nuts

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Nuts contain bioactive constituents that elicit cardio-protective and anticancer effective containing phenolic compounds, healthy lipids, tocopherols, sterols and squalene. This study was undertaken to identify the parameters of pistachio, walnuts, almonds, peanuts, hazelnuts, macadamia nut, ground brazil, pecan, pine, cashew nuts consumed in Turkey markets and to identify the stability and storage characteristics. Total lipids, fatty acid profiles, tocopherols, sterols and oil stability were determined on the oil extracted from the fresh nuts. Lipid content of the nuts varied between 41.2 -79% and the peroxide values of the fresh oils were 0.13-3.48 meq O₂/kg oil whereas the oil stability measured by Rancimat test ranged from 3.9 to 21.2 h. The major monounsaturated fatty acids (MUFAs) were oleic acid (C18:1) (42.3-59.8%), palmitoleic (C16:1) acid and palmitic acid (C16:0), while linoleic acid (C18:2) was the most prevalent polyunsaturated fatty acids (PUFAs). The PUFA levels (as 18:2+18:3) ranged from 3.53 to 4.23%. The total tocopherol levels ranged from 63.6 to 297.8 mg/g whereas alpha-tocopherol and delta-tocopherol were as 0.8–1.3 ug/g lipids and 3.8–5.4 ug/g lipids, respectively. The major sterol was identified as beta-sitosterol and its content was 934.5- 4853.2 mg/g oil. The all data was evaluated by multivariate analysis using SPSS (ver.13.0) statistical package program. The nuts were good separated based on the functional lipid and lipid constituent differences. The multivariate techniques could be used for oxidative stability and lipid profiles of nuts.