

DETERMINATION OF TOTAL PHENOLIC AND FLAVONOID COMPOUNDS IN JUICES AND PEELING EXTRACTS OF CITRUS FRUITS

R. Irkin^{1*}, S. Dogan², N. Degirmencioglu³, M. E. Diken⁴, M. Guldas⁵

¹⁾ Balıkesir Univ., Susurluk Vocational Sch., Susurluk, Balıkesir, Turkey

²⁾ Balıkesir Univ., Science-Art Faculty, Biology Dept, Balıkesir, Turkey

³⁾ Balıkesir Univ., Bandırma Vocational School, Balıkesir, Turkey

⁴⁾ Balıkesir Univ., Science-Art Faculty, Biology Dept, Balıkesir, Turkey

⁵⁾ Uludağ Univ., Karacabey Vocational Sch., Karacabey, Bursa, Turkey

In this research; total phenolic and flavonoid compounds' amount determined in mandarin (*Citrus reticulata*), orange (*Citrus sinensis*), grapefruit (*Citrus grandis*) and lemon (*Citrus limonum*) juices and methanol extract of citrus peelings. Agilent Technology 6130 Quadrupole LC/MS (C18 column) was used for chromatographic analysis of citrus juices and peeling samples. Total phenolic compounds were determined 657.65, 636.73, 579.41, 523.44 mg GAE/L for grapefruit, mandarin, lemon and orange juices; 13.71, 11.08, 9.31, 5.35 mg GAE/g for grapefruit, orange, mandarin and lemon peeling extracts, respectively. Total flavonoid compounds were analyzed as 2.304, 1.69, 1.50, 0.338 mg quercetin/L for grapefruit, mandarin, orange and lemon juices, 0.073, 0.059, 0.049; 0.099 mg quercetin/g for grapefruit, orange, mandarin and lemon peeling extract samples, respectively. Between the phenolic compounds gallic acid, p-cumaric acid, quercetin were not found in the samples. Chlorogenic acid was found in higher amounts 2.145 ppm and 1.95 ppm in grapefruit and orange peeling samples respectively than the other samples. Caffeic acid was found 0.19, 0.166, 0.07 and 0.04 ppm in orange, grapefruit peeling samples, orange and lemon juices, respectively. Naringin was reported 577.35 ppm in grapefruit peeling samples. Rutin hydrate was determined in lemon juice samples. Hesperidine were determined in all samples except mandarin peeling samples and higher amount (170.04 ppm) in orange peeling samples. Neo-hesperidine was analyzed (5.318 ppm) in only grapefruit juice samples. Citrus fruits and peel extracts containe citrus phenolic compounds in high percentage that can be used to provide functionality to the foods.

Keywords: citrus fruits, phenolic compounds, flavonoid compounds

* Corresponding author: reyhan@balikesir.edu.tr