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Identification and determination of some bioactive and allergenic compounds in licorice using LC/ESI-MSMS

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Roots and rhizomes of *Glycyrrhiza* species, commonly known as licorice (liquorice), have been used for medicinal purposes for long years and have also been used as a natural sweetener and a flavor additive in foods and beverages such as coke. Licorice has a variety of effects, such as antioxidant, anti-viral, anti-carcinogenic, antitumor, anti-inflammatory, anti-depressant and anti-diabetic etc. *Glycyrrhiza glabra L.* has commonly been grown in nearly all regions-especially Mediterranean and Southeast regions- of our country, Turkey. In this study, new LC-MS/MS method for identification and determination of glycyrrhizin, glycyrrhithinic acid, liquiritin and carbenoxolone in licorice was developed. This four compounds in licorice extracted by using ultrasonic water bath with 20%, 50%, 80%, 100% ethanol-water and methanol-water mixtures at room temperature for 45 min. Then, extracts obtained in this way, were filtered and diluted before being injected into the LC system. According to average of three replicates of nine samples, max value of glycyrrhizin was 696.35 ± 3.31 mg g⁻¹ in 20% methanol-water mixture, min value of glycyrrhizin was 176.50 ± 1.05 mg g⁻¹ in 100% methanol; max value of glycyrrhithinic acid was 340.24 ± 0.06 µg g⁻¹ in 50% methanol-water mixture, min value of glycyrrhithinic acid was under the limits of quantitation in 100% ethanol and in 100% water; max value of liquiritin was 73.53 ± 2.03 µg g⁻¹ in 20% ethanol-water mixture, min value of liquiritin was under the limits of quantitation in 100% ethanol; carbenoxolone was not detected. Consequently, this method is simple, rapid and effective for identification and determination of these bioactive and allergenic compounds.

Biography

Fahriye Seyma Bayraktar is a Researcher at TUBITAK MRC Food Institute. She received her Bachelor's degree from University of Celal Bayar in Department of Food Engineering, Manisa, in 2011 and also received her Master's degree from University of Ankara in Department of Food Engineering, Ankara, in 2014. She is also a Post-graduate in Department of Food Engineering at Yildiz Technical University, Istanbul.

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