Characterization of Phenolic Compounds in Peel, Pulp and Seed Fractions of *Zizyphus Jujube* Fruit by UFLC-PDA and Determination of Antioxidant Activity

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ABSTRACT

The objective of this present study was to characterize peel, pulp and seed tissues of *Zizyphus jujube*, commonly known as «Jujube», to determine the total phenolic content, anthocyanin content, antioxidant activity and phenolic profile. Antioxidant potential of samples were measured with two different methods 2,2-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging activity and cupric reducing capacity (CUPRAC). Monomeric anthocyanin contents of the samples were determined using the pH differential method. The total phenolic content of the extracts was determined according to the Folin Ciocalteu method. Moreover, an ultra-fast liquid chromatograph (UFLC) method with photodiode array detector (PDA) was used to identify total phenolic acids (gallic acid, 3,4dihydroxybenzoic acid, catechin, chlorogenic acid, caffeinne, 4p-hydroxybenzoic acid, epicatechin, epigallocatechingallate, caffeic acid, vanilic acid, syringic acid, rutin, p-coumaric acid, vanilin, sinapic acid, ferulic acid, rosemarinic acid, phloridzin, myricetin, ethyl 3,4-dihydroxybenzoate, luteolin, quercetin, trans-cinnamic acid, naringenin, apigenin, kaempferol, hesperetin, ısorhamnetin, rhamnetin, ladanein, pectolinaringenin, pinostrobin) in peel, pulp and seed phenolic extracts of jujube. Total phenolic content of peel, pulp and seed were determined as 27.16±1 55, 33.74±0 60 and 10.37±0 86 mg gallic acid equivalent (GAE)/g dry weight, respectively. Antioxidant activities evaluated by DPPH were as follows 62.32±0 79, 122.63±0 92 and 15.52±0 80 mg Trolox equivalent (TE)/g dry weight, respectively. Antioxidant activities evaluated by CUPRAC were as follows 60.62±1.92, 69.91± 0.92 and 21.03±1.73 mg Trolox (TE)/g dry weight, respectively. Anthocyanin contents of the samples found as 419.97±10.89, 29.41±6.45 and 24.05±5.18 mg cyanidin 3-glucoside 100 g dry weight for peel, pulp and seed fractions, respectively. The results of UFLC analysis indicate that catechin and vanilic acid were the main phenolics in all fractions of jujube.

Keywords: Antioxidant activity; jujube; phenolics; *Zizyphus jujube*.