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SHORT COMMUNICATION

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Physico-chemical characteristics of wild plum fruits (*Prunus spinosa* L.)

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Abstract

The genotypic variation on physico-chemical characteristics of wild grown plums (*Prunus spinosa* L.) was investigated. The total phenolic contents were in a range of 117 to 407 mg GAE/100 g FW. The vitamin C was highest in yellow colored fruits (12.10 mg/100 ml). The total soluble solid content varied between 9.40% (yellow colored) and 12.90% (dark purple colored) fruits. Antioxidant activity of dark purple, red and yellow skin colored plum fruits were found between 71.15-78.99% which lowers than standard BHA (82.07%).

***Keywords*:** Antioxidant activity; Chemical composition; Plums; Total phenolics

Introduction

Plant characteristics of plum species naturally grown in Turkey are very diverse. Northeast part of Turkey; in particular Coruh valley has notable populations of dark purple, red and yellow skin color-fruited wild grown plums. The fruit sometimes are only 20 mm in size and highly astringent. Local people are living in this region mostly using wild edible fruits, including wild plums as a source of food and medicine for thousands of years (Ercisli, 2004).

According to literature searched, there have been studies on chemical composition of cultivated plums (Bilgu and Seferoglu, 2005). However, no comparative studies have been done on wild-growing plums. Therefore, in the present study an attempt has been made to know the variability in physico-chemical characteristics of dark purple, red and yellow color-fruited plum genotypes belongs to *Prunus spinosa*.

Materials and Methods

Wild-growing plum fruits were harvested from genotypes (*Prunus spinosa* L.) from Coruh Valley in Turkey in 2006 and 2007. Fifty fruits from each genotype were used for

analyses. Skin color and fruit weight of plum fruits were measured by CR-400 chromometer and a digital balance. Total soluble solid contents (TSS) were determined with a digital refractometer. The titratable acidity was determined by an automatic titration system. Ascorbic acid was quantified with the reflectometer set of Merck Co (Merck RQflex). In β-Carotene–linoleic acid assay, antioxidant capacity of plum fruits is determined by Barriere et al., (2001). The content of total anthocyanins of the juice was determined by the pH differential method (Wrolstadt, 1976). Folin–Ciocalteu reagent used to determine total phenolic content (Slinkard and Singleton, 1997). Fruit characteristic data were analyzed using SAS procedures.

Results and Discussion

Average fruit weight of plum genotypes ranged between 5.86 g (red colored) and 7.83 g (dark purple colored) (Table 1). The titratable acidity was the highest in red skin colored fruits as 4.99%, whereas the lowest in dark purple colored fruits (3.87%). pH were 3.13 (dark purple colored) and 3.70 (red colored); TSS were 11.98% (dark purple colored)-14.98% (red colored). Wide variations in physico-chemical characteristic have been reported on plums (Bilgu and Seferoglu, 2005). Vitamin C content of dark purple, red and yellow plum fruits ranged from a low of 3.8-12.1 mg/100 ml of fresh fruit (Table 1). Vitamin C content of plum genotypes were reported from 3 to 10 mg/100 ml (Gil et al., 2002). The highest amount of total anthocyanin was observed in dark purple fruits (41.3 mg/100 g). The total phenolic contents of the fresh plums per 100 g ranged from 117±2.5 mg GAE in yellow skin colored fruit to 407±2.9 mg GAE in dark purple skin colored fruit (Table 1). Earlier, total phenolic content in plum fruits was reported which ranged from 42-413 mg GAE/100 g fresh weight (Gil et al., 2002; Kim et al., 2003).

The antioxidant activity of dark purple colored fruit (78.99%) was higher than the other genotypes (Table 1). These results agree with those previously reported for plums in which a good antioxidant capacity (Gil et al., 2002). This may first study to provide data that fruits of *Prunus spinosa* has high level biological activity.

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