MÜSBED 2014;4(Suppl. 1):S34

Determination of The Amount of Ellagic Acid and Resveratrol in Blueberry Samples Grown in Turkey by High Performance Liquid Chromatography-DAD and LC-MS/MS Method

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Objective: Ellagic acid (EA) and resveratrol (RES) are phenolic compounds naturally found in fruits. In this study, EA and RES in four highbush (Vaccinium corymbosum) blueberry varieties grown in the Black Sea Region of Turkey (Bluecrop, Brigitta, Darrow and Bluejay) were analysed.

Method: Blueberry extracts obtained by pressurized liquid extraction (PLE) and PLE-SPE were analysed using high performance liquid chromatography (HPLC) and LC-MS/MS.

Results: The method consisted of 5 mM potassium dihydrogen phosphate/ACN mobile phases and gradient elution was performed using Luna ODS-2 RP- C18 (5µm, 4.6 ×250 mm i.d.) column in 1 mL/min flow. For EA, the linerity was obtained in a concentration range of 0.4963–11.5815x10^{-6} mol.L^{-1}, y=40.733x+1.9204 (r^2=0.9963); limit of detection (LOD) and limit of quantification (LOQ) were determined as 0.1271x10^{-6} M and 0.3814x10^{-6} M, respectively. For RES, the linerity was obtained in a concentration range of 0.6571 – 10.9530x10^{-6} mol.L-1, y=35.105x+9.2686 (r^2=0.9963); LOD and LOQ were determined as 0.1898x10^{-6} M and 0.5694x10^{-6} M, respectively. All results were revaluated according to 91.85% and 84.97% recovery value, for EA and RES, respectively. The amount of EA and RES was found out in the range of 1.65 - 9.16 mg/kg and 2.95 - 9.31 mg/kg in the lyophilized blueberry varieties.

Conclusion: The HPLC method developed in this study would be helpful in determination of phenolic acid content in fruits, and this would enlighten the cancer researches on blueberry.

Key words: Blueberry, ellagic acid, phenolic acid, resveratrol, LC-MS/MS, HPLC