Anthocyanins are phenolic plant metabolites belonging to the flavonoid family. As one of the main classes of natural antioxidant compounds, anthocyanins exist in various kinds of fruits, vegetables and processed commercial products that are highly-consumed food groups. They are mainly distributed among flowers, fruits (particularly in berries), and vegetables and are responsible for their bright colors such as orange, red, and blue [1]. Recently, increased attention has been given to the possible health benefits of anthocyanin compounds in preventing chronic and degradative diseases including heart disease and cancer. These effects were partly attributed to their antioxidant capacity. On the other hand, anthocyanin composition of fruits and vegetables can be used as a fingerprint to monitor the authenticity of juices. Analytical techniques for analysis of anthocyanins usually involve in the use of spectrophotometric and chromatographic techniques. Electrospray ionization-mass spectrometry (ESI-MS) has emerged as a powerful technique for the characterization of biomolecules and is the most versatile ionization technique in existence today [1, 2].

A simple and rapid HPLC-ESI-MS method was optimized for the determination of anthocyanins including delphinidin-3-o-gluco side, cyanidin-3-o-gluco side, pelargonidin-3-o-gluco side and malvidin-3-o-glucoside in the pomegranate. For this purpose, flow rate of mobile phase, fragmentor potential, injection volume and column temperature were examined and optimized as 0.5 mL min⁻¹, 110 V, 5 µL and 30 °C, respectively. Extraction condition which is screening of solvent type was applied for extraction of pomegranate samples. From the optimization study for extraction of the pomegranate samples, 0.1% HCl in acetonitrile was determined as solvent. The concentrations (as mg kg⁻¹) of delphinidin-3-o-glucoside, cyanidin-3-o-glucoside, pelargonidin-3-o-glucoside, and malvidin-3-o-glucosides in cranberry were found to be in range of 38-76, 47-76, 6.2-21 and <LOQ, respectively.

KEYWORDS: anthocyanins, pomegranate, optimization, HPLC-ESI-MS.

REFERENCES: