Further research concerning the extraction of anthocyanins from strawberries (*Fragaria xananassa*) and analysis using HPLC/Q-TOF mass spectrometry

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Abstract

Anthocyanins were extracted from strawberries (*Fragaria xananassa* 'Tochiotome') using eight types of extraction media. The extracts were analyzed using high performance liquid chromatography-mass spectrometry. The quantity of anthocyanins recovered was influenced by the concentration and composition of the extracting solutions. Lower levels of anthocyanins were extracted using various concentrations of MeOH, ethanol, and aqueous HCl, while the use of 45% formic acid, 45% formic acid in MeOH, 45% formic acid in ethanol, or 1% HCl in MeOH or ethanol resulted in much higher extraction yields. Extraction using solutions containing formic acid yielded 16 anthocyanins, in contrast to other solutions from which only 7-10 anthocyanins were isolated. Pelargonidin (Pg) derivatives were the primary anthocyanins recovered. Ten Pg derivatives were detected, with the most abundant being Pg 3-glucoside, followed by Pg 3-rutinoside and Cyanidin 3-glucoside. We found that aqueous solutions containing more than 10% formic acid were the most productive in terms of extraction yield.