

Title Natural occurrence of free anthocyanin aglycones in beans (*Phaseolus vulgaris* L.)
Author Glenda A. Macz-Pop, Julián C. Rivas-Gonzalo, José J. Pérez-Alonso and Ana M. González-Paramás
Citation Food Chemistry Volume 94, Issue 3, February 2006, Pages 448-456
Keyword Anthocyanins; Anthocyanidins; Beans; Legumes; *Phaseolus*; LC-MS analysis

Abstract

The application of an improved method of extraction and purification has allowed the characterization of anthocyanins and free anthocyanidins in beans, *Phaseolus vulgaris* L. using LC-MS determination.

HPLC analysis of the final extract showed the existence of seven compounds when 520 nm was the selected wavelength. Major peaks were identified, according to their retention times and UV–Vis spectra, as cyanidin and pelargonidin monoglucosides when they were compared to those of the in-house library. Taking into account mass spectrometric data, together with elution time and spectral features, it was possible to identify peaks corresponding to cyanidin and pelargonidin diglucosides. As far as we know, these anthocyanins have not been detected in *P. vulgaris* L. before.

The last three peaks in the chromatograms were thought to be acylated anthocyanins, due to their smaller polarity. However, MS spectra showed signals at m/z 287, 301 and 271, which would be in accordance with molecular ions corresponding to anthocyanidins: cyanidin, peonidin and pelargonidin, respectively. Moreover, these compounds had the same retention times and UV–Vis spectral features as those of aglycones arising from acid hydrolysis of the final extract.

These results demonstrate, for the first time, the presence, in natural form, of free aglycones in vegetable samples. Until now, the bibliographical data have indicated that, in nature, this type of compound is only found in heteroside forms.