ANALYSIS OF PIGMENTS IN RED FRUITS EXTRACTS BY THIN LAYER CHROMATOGRAPHY

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Pigments are widely found in plants and fruits and are responsible for their colour. Green chlorophylls (*a* and *b*) and red, orange or yellow carotenoids (carotenes as β-carotene and xanthophylls as lutein) are among the most important pigments in plants. Anthocyanins (cyanidin, pelargonidin, delfinidin, malvidin glucosides), are the ubiquitous water-soluble pigments that are found and are responsible for red and blue colours.

The aims of the present work were:

- To use a simple chromatographic technique to illustrate the separation of pigments of extracts obtained from different fruits.

- To keep the experimental and data treatment procedures as simple as possible to enable the implementation of this work in teaching laboratories.

Extracts of strawberries, red currant, raspberry, blueberry, blackberry, red plums and red grapes were analysed by TLC (silica plates 20×20 cm as stationary phase) and a mixture of ethanol:ethyl acetate (50:50) was used as mobile phase.

After analysis, the plate was dried and a simple HP scanjet 3500c scanner was used to record the image: the file obtained was transferred to a personal computer for treatment. A general mathematics software Mathcad2001 (student edition MathSoft, Inc.) was used in order to convert the image recorded in a matrix containing grayscale (or trichromatic) numerical values varying from 0 to 255: this matrix was than treated with Microsoft Excel.

Simple numerical treatments make possible graphical presentation as illustrated in figure using the chromatographic profile obtained in the analysis of blueberry extract.

Quantifications are also possible as quantitative data may be obtained by sum of values. Total areas obtained in analysis of the same extract by application of different volumes of sample are presented in figure.

Areas of individual peaks pointed in figure were measured for the six samples and R^2 values of 0.989 and 0.996 were obtained confirming that the proposed method can be used for quantitative purposes.
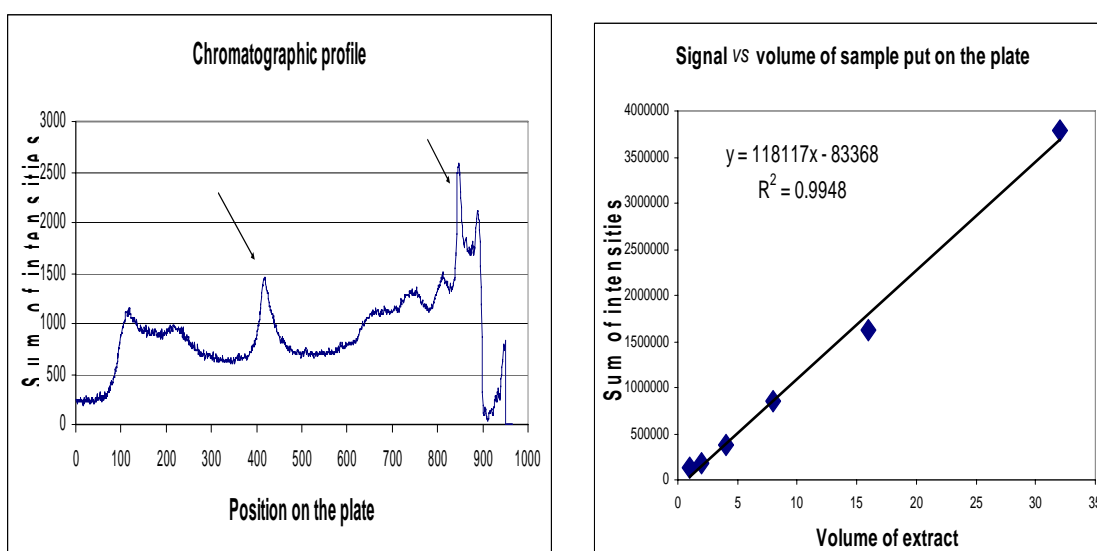

Figure. Separation by TLC of pigments present in acetone extracts of blueberry: chromatographic profile and results of quantification