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QUANTITATIVE DETERMINATION OF BETANIN USING HPLC

Betanin is a pigment that is commonly found in products that contain red beetroot such as yogurt, ice cream and desserts. It is used as a red food colorant because of its high absorbance of visible light. This study determines the amount of betanin in yogurt samples collected from grocery stores and from the local supermarket. The samples are diluted in a sodium phosphate buffer with a pH value of 6, at which betanin is stable. High performance liquid chromatography (HPLC) is used to generate a chromatogram in which each signal corresponds to a different component in the sample. The area of the signal is related to the concentration of the components in the sample. A linear gradient elution using HPLC, in which the mobile phases are HPLC grade water with 0.05% TFA and acetonitrile with 0.05% TFA, are used for separation. After separation, detection of betanin is performed by measuring absorbance using a single wavelength detector at a wavelength of 536 nm. Two peaks are

observed on the chromatograms of the standards, both of which correspond to betanin. This is because betanin has a chiral carbon which allows for the formation of two isomers under high pressures. A calibration curve is plotted using signal area and concentration of betanin in the standard solutions. The samples are run on HPLC and, using the calibration curve, the signal area of betanin is used to calculate its concentration.

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