Simultaneous Extraction and Determination of Preservatives and Antioxidants in Juice Samples by an Optimized Microextraction Method Using Central Composite Design and Validated …

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Description

Background:

Food additives are widely used in industries. Overall, these additives have a beneficial role, but if their concentration exceeds certain limits, they may have an adverse effect on human health.

Objective:

This study outlines the determination of benzoic acid (BA), sorbic acid (SA), butylated hydroxyanisole (BHA), and butylated hydroxytoluene (BHT) in juices using dispersive liquid–liquid microextraction and HPLC–diode-array detection.

Methods:

Different parameters that significantly affect the extraction efficiency were optimized. The disperser and extraction solvents were acetone and chloroform, respectively. The other parameters were selected and optimized using two-level (2k) factorial and central composite designs, respectively. A full method validation using an accuracy profile for the total measurement error was carried out.

Results:

The optimized conditions were 625 µL acetone, 350 µL …