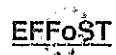


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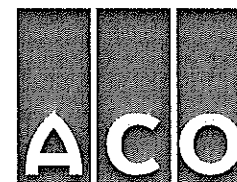
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FOOD SUSTAINABILITY AND EDUCATION

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Abstract

By the definition sustainability is: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs". It includes social, economic and environmental dimension. Food system is within the sustainability focus area, all from primary production to manufacturing, packaging, distribution, retail and consumption, and to waste management.

When it comes to recognizing role that we can all play in creating a more sustainable the food system we should start from small children's to professionals in the food sector by implementing education (process of learning) and training (teaching a particular skill) programs across the whole community (world) and will be able to spread and raise the knowledge about food sustainability.

Bringing elements of education about the sustainable food system and environmental issues into general standard subjects will bring benefits to the whole society.

Key words: Food sustainability, Education.

COMPUTER ASSISTED OPTIMIZATION OF ULTRASOUND EXTRACTION OF TOTAL PHENOLICS FROM CITRUS PEEL

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Abstract

The aim of this study was to determine the optimal conditions for the rapid ultrasound extraction of total phenols in some citrus peels samples (tangerine and grapefruit). Parameters influencing the optimal (maximum) extraction yield were: methanol concentration (v/v%), solid: liquid ratio (g/mL), temperature (°C) and extraction time (min).

The statistical optimization of these parameters was performed with the aid of Design Expert (v 7.0.0, Stat-Ease Inc, Minneapolis) statistical software. The optimal conditions for extraction were established using central composite experimental design and response surface methodology. Experimental data were fitted to the second order polynomial model and regression coefficients were calculated. The total phenolic content (TPC) in extracts of citrus peels obtained by liquid methanol/water extraction was measured using Folin-Ciocalteu at 765 nm. Total phenolic content was determined spectrophotometrically and calculated on the basis of the calibration curve for gallic acid (GAE) obtained under optimal conditions.

Results showed that methanol concentration, solid : liquid ratio and temperature were the most significant ($P < 0.001$) factor affecting the TCP. The optimum extraction conditions for tangerine were: methanol concentration of 60%, solid/liquid ratio 1/30 g/mL, extraction time of 30 min., and extraction temperature of 60 °C, and for grapefruit: methanol concentration of 50%, solid/liquid ratio 1/40 g/mL, extraction time of 50 mins., and extraction temperature of 60 °C. Under the optimal conditions, TPC was 109.16 mg GAE/100 g dry weight for tangerine and 168.48 mg GAE/100 g dry weight for grapefruit.

Key words: Computer optimization, Total phenolic content (TPC), Citrus peel.