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## Investigation of injured cells due to minimal processing

Fanni Zakariás[1], Belma Bajramović[1], Zaher Almoheb[1], István Dalmadi[2], Gabriella Kiskó[1]
[1] Department of Food Microbiology, Hygiene and Safety, Institute of Food Science and Technology, Hungarian University of Agriculture and Life Sciences,
[2] Department of Livestock Product and Food Preservation Technology, Institute of Food Science and Technology, Hungarian University of Agriculture and Life Sciences,

Minimal pocessing is becoming more popular in case of fruit juices and smoothies. They better preserves the valuable properties of fruits, such as vitamins and antioxidants, but at the same time, food safety is at least as important aspect of a new technology as better product quality. If the treatment measures are not adequate, injured cells may remain in the product, which can cause disease under the right conditions

Our aim was to examine the extent of damaged cell formation of pathogenic bacteria, Salmonella Hartford and Listeria monocytogenes in sterile distilled water, in strawberry purée and in fruit smoothie after mild heat treatment (55 °C, 65 °C and 75 °C with different treatment time) and high hydrostatic pressure (HHP) treatment (150 MPa, 200 MPa, 250 MPa and 300 MPa, 5 min). The number of injured cells was examined using the thin agar layer (TAL) method in all 3 matrixes.

Both heat and pressure treatment resulted significant number of injured cells, which justifies the use of a combination of mild treatments with each other or with another technologies

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## Resin purification of polyphenols from the crude extracts of apple pomace for potential use as natural food additives

Faraja Deo Gonelimali, Beatrix Szabó-Nótin, Mónika Máté
Department of Fruit and Vegetable Processing Technology, Institute of Food Science and Technology, Hungarian University of Agriculture and Life Sciences

Polyphenols from agro-industrial waste particularly of fruit origin are a reliable source of antioxidants and antimicrobials that can be used as natural food additives. Organic solvents play an important role in extracting the polyphenols however, inefficiency in exerting bioactivity and interference with the organoleptic properties are among the reasons that hinder their use as food additives. These problems can be alleviated by purification. In this study, The effect of resin types and elution solvent for purification of the apple pomace extracts on TPC and antioxidants were investigated. Crude ethanolic extracts were purified using amberlite resins (XAD7 and FPX66) in a glass column (25×310 mm). The sorption flow rate was 2 Bed volume (BV) per hour, rinse 2 BV per hour, and desorption was 2 BV per hour. Final wash and regeneration were each done by 2 BV per hour. Polyphenol content and antioxidant were quantified spectrophotometrically using Folin-Ciocalteu and Ferric reducing antioxidant power (FRAP) assays respectively. Polyphenol recovery was 50% in XAD7 (Lowest) using ethanol and 69% in FPX66 (Highest) using acetone. For the case of FRAP recovery, 76% (Lowest) was observed in FPX66 using ethanol while 93%(Highest) was observed in XAD7 using acetone. Conclusively, FPX66 is the ideal resin for the purification of apple pomace extracts for enhancing antioxidant activity compared to XAD7. Further, acetone seems to be a good desorption solvent compared to ethanol.