

Polyphenols and sugars recovery from autohydrolysis of pineapple waste

Leonardo Sepúlveda⁽¹⁾, Aloia Romani⁽¹⁾, Cristóbal N. Aguilar⁽²⁾ and José Teixeira⁽¹⁾

(1) Centre of Biological Engineering, University of Minho, Portugal.

(2) Food Research Department, Universidad Autónoma de Coahuila, México.

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The aim of this research was to evaluate the influence of temperature, time and mass/volume ratio on the release of sugars and polyphenols using an autohydrolysis procedure from pineapple waste. A Box-Bhenken design was used with three factors (time, temperature and mass/volume ratio) and three levels was used. All treatments were performed in triplicate. Nine central points were used. For autohydrolysis treatments, an oil bath was used [1]. After autohydrolysis, liquid phases or hydrolysates were analyzed for glucose and fructose concentration by high performance liquid chromatography (HPLC) [2]. The Folin-Ciocalteu assay was used to measure total polyphenols of hydrolysates [3] and HPLC to identify these molecules [4].

Figure 1, shows the concentration of fructose, glucose and polyphenols obtained from experimental matrix Box-Bhenken design from autohydrolysis treatments of pineapple waste. It was observed that the highest accumulation of fructose (33.85 g/L) and glucose (27.62 g/L) was obtained in the treatment G with no statistical difference between treatment K. The highest accumulation of total polyphenols (1.75 g/L) was obtained in treatment H. Autohydrolysis process is a good alternative for an effective extraction (using water as only reaction medium) of value-added compounds that can be used for alcoholic drinks enriched with natural antioxidants. In addition, this technology is an environmentally friendly extraction alternative in compared with traditional chemical process.

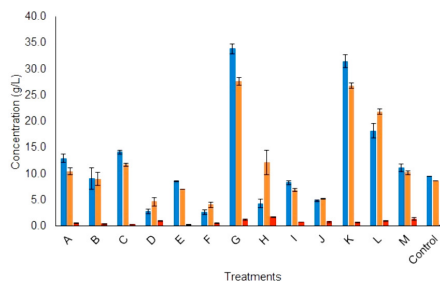


Fig. 1. Release of fructose ■, glucose ■ and polyphenols ■ of Box-Bhenken design from pineapple waste by autohydrolysis.

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