

Effects of different preservation treatments on nutritional profile on juices from different sugar cane varieties

ABSTRACT

The commercialisation of sugarcane juice is limited due to its rapid quality degradation. This study was conducted to determine the effect of High Pressure Processing (HPP) and High Pressure Homogenisation (HPH) on physicochemical, antioxidant properties and microbiological quality of red sugarcane juice. The red sugarcane juice samples, Kapur, Madu, Serai and Ragnar were subjected to HPP and HPH at 300 MPa for 2 and 5 min before the analysis was performed. Initial brix content, polyphenol oxidase (PPO) and nutritional content of sugarcane juice values of showed that Madu juice contained the highest total phenolic content (TPC) and antioxidant properties (FRAP and DPPH radical scavenging assay) amongst all variants. HPP-treated juice showed no significant difference to the untreated juice in terms of physicochemical properties (total soluble solid, pH and colour), microbial count and polyphenoloxidase activity. In contrast, HPH showed significant decrease in microbial load and polyphenoloxidase activity. The sugar cane juice subjected to HPP and HPH for 5 min showed significant increase and significant decrease, respectively, in term of TPC as compared to untreated sample. In conclusion, HPP appears to be an effective approach to retain TSS, pH and colour of the red sugarcane juice, while increasing the antioxidant quantity which is desirable in the commercialisation of the juice. However, HPH is a better method to reduce PPO activity and microbial load, thus beneficial in reducing the browning process and potentially extending the shelf life.

Keyword: High pressure homogenization; High pressure processing; Red sugarcane juice