

ABSTRACT

In the present study, efforts have been directed to the possible utilisation of the waste tomato material, not only from the point of food conservation and waste management, but as a profitable adjunct to the tomato processing industry. In order to protect the phyto-chemical properties and nutritional quality of tomato waste during dehydration process, investigation was carried out using different pre-treatments for producing enhanced dried pomace.

Calcium chloride (CaCl_2), potassium meta-bisulphite (KMS), calcium chloride and potassium meta-bisulphite ($\text{CaCl}_2 + \text{KMS}$), sodium chloride (NaCl), sodium chloride and Calcium chloride ($\text{NaCl} + \text{CaCl}_2$), sodium chloride and potassium meta-bisulphite ($\text{NaCl} + \text{KMS}$) were selected for treatment. Lycopene content, polyphenol content, ascorbic acid in addition to moisture content, were studied. In general, increasing drying air temperature increases drying potential and consequently decreases process time. Lower degradation rates were observed in osmotically pre-treated tomato waste. Osmotic pre-treatment was found to be effective for enhancing drying rate with KMS + NaCl being more efficient among all, as minimum degradation of the above said phytochemicals was observed in this pre-treatment. Least Lycopene degradation was observed, from 109 mg/100g to only 56 mg/100g when treated with 2% KMS for 3 hrs, while significant destruction was seen from 61 mg/100g to 4 mg/100g, when 2% CaCl_2 and 10% NaCl were applied in a combination. Similarly significant destruction of Polyphenols occurred in treatment with 2% CaCl_2 and 10% NaCl from initial 3.54 mg/100g to a finally 0.55 mg/100g. On the other hand, treatment with 2% KMS and 10% NaCl applied in combination, Polyphenols were degraded to least extent from 2.1305 mg/100g to finally 0.89 mg/110g. Similarly, for ascorbic acid, the best treatment was applying 2% KMS and 10% NaCl applied in combination for 3hrs, during which the amount reduced from 14.80 mg/100g to only 2.81 mg/100g. On the other hand, treatment with 2% CaCl_2 and then applying 10% NaCl subsequently caused a maximum destruction of the compound from 183.45 mg/100g to a final value of 11.80 mg/100g.

Keywords: Tomato waste, Lycopene, Polyphenols, Ascorbic acid, Osmotic Pre-treatment.
