

Food Waste and Sustainable Management

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Abstract : Throughout the food chain, the food waste from initial agricultural production to final household consumption has become a serious concern for global sustainability because of its adverse impacts on food security, natural resources, the environment, and human health. About a third of tomatoes (*Lycopersicon esculentum* L.) delivered to processing plants end as processing waste. The amount of such waste material is estimated to have increased with the emergence of mechanical harvesting. Experiments were made to determine the nutritional profile and antioxidant activity of tomato processing waste and to explore the bioactive compound in tomato waste, i.e., Lycopene. Tomato Variety of 'SAHARA F1' was used to make tomato waste. The tomatoes were properly cleaned, and then unwanted impurities were removed properly. The tomatoes were blanched at 90 °C for 5 minutes. After which, the skin of the tomatoes was removed, and the remaining part passed through the electric pulper. The pulp and seeds were collected separately. The seeds and skin of tomatoes were mixed and saved in a sterilized jar. The samples of tomato waste were found to contain 89.11 ± 0.006 g/100g moisture, 10.13 ± 0.115 g/100g protein, 2.066 ± 0.57 g/100g fat, 4.81 ± 0.10 g/100g crude fiber, and 4.06 ± 0.057 g/100g ash and NFE 78.92 ± 0.066 g/100g. The results confirmed that tomato waste contains a considerable amount of Lycopene 51.0667 ± 0.00577 mg/100g and exhibited good antioxidant properties. Total phenolics showed average contents of 122.9600 ± 0.01000 mg GAE/100g, of which flavonoids accounted for 41.5367 ± 0.00577 mg QE/100g. Antioxidant activity of tomato processing waste was found 0.6833 ± 0.00577 mmol Trolox/100g. Unsaturated fatty acids represent the major portion of total fatty acids, Linoleic acid being the major one. The mineral content of tomato waste showed a good amount of potassium 3030.1767 mg/100g and calcium 131.80 mg/100g, respectively were present in it. These findings suggest that tomato processing waste is rich in nutrients, antioxidants, fatty acids, and minerals. I recommend that this waste should be sun-dried to be used in the combination of feed of the animals. It can also be used in making some other products like lycopene tea or several other health-beneficial products.

Keywords : food waste, tomato, bioactive compound, sustainable management

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