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Volatomics Profiling of Papaya Fruits to Identify Non-Invasive Marker for tracking different Ripening Stages

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Papaya (*Carica papaya* L.) is one of the most important fruit crops grown in the tropical and sub-tropical regions of the world. Being a climacteric fruit, papaya has a short postharvest life, which limits the nutritional value and economic return. Shipping in refrigerated containers cannot yet offer sufficient storage life without the use of fungicides. This work is focused on identifying signature volatile organic compound (VOCs) as non-invasive marker for tracking the ripening stages and nutritional profile under pre- and post-harvest conditions. VOCs were profiled using SPME GC-MS techniques. Total thirty-seven VOCs were detected from the papaya fruits, out of which five were identified as signature VOCs. Signature VOCs showed significant variation during ripening and post-harvest storage along with exhibiting a pattern correlation with nutritional profile. Sugars, amino acids, carotenoids, fatty acids and phenolics were profiled during pre and post-harvest storage. VOCs were discriminated using the Principal Compound Analysis. Correlation of VOCs with nutritional profile was established using pattern algorithm. These signature VOCs could serve as excellent candidates for sensing ripening stages and nutritional value of papaya by using non-invasive sensors. Farmers in this mobile phone generation could easily accept this technology.

Biography

Komal Kushwaha, completed her graduation and post-graduation in botany from Banaras Hindu University, India. Currently, she is a senior research fellow in department of biotechnology, IIT Roorkee, India. She qualified GATE with 94.91 percentile in 2017.

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