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### Volatile Organic Compounds in Papaya are Non-Destructive Biomarker to Track the Maturation Stage and Nutrition

Papaya, scientifically called as *Carica papaya*, is tropical climacteric fruit and ranked first on nutrition values. Harvesting of papaya greatly impacts the quality and shelf-life. Volatile organic compounds (VOCs) releasing from intact papaya during the maturation process was actual time non-destructive maturation biomarker to track the maturation of papaya. This work has been carried out to decipher volatile profiling of papaya fruits at different maturing time points of papaya fruits to detect kinetic patterns of volatile organic compounds (VOCs) associated signature metabolites. We have employed high-throughput chromatography mass-spectrometry metabolomics to identify marker volatile metabolites present in the fruit. We have identified some crucial volatile metabolites present in the papaya. In addition, we also estimated physicochemical indices viz., total soluble sugars, pH, firmness, TSS (total soluble solids), antioxidant activity,  $\beta$ -carotene content, and ascorbic acids content. Finally, a co-relation was established between marker volatile with physicochemical indices of papaya fruits. VOCs identified from this study can be used as flagship in the electronic-noses for detecting the maturation stage of the papaya. This project work was supported by funding from National Agricultural Science Fund (ICAR-NASF), India.

### Biography

My name is Komal Kushwaha and I have completed graduation and post-graduation in Botany with first division from Banaras Hindu University, Varanasi, U.P. (India) and pursuing PhD from Indian Institute of Technology Roorkee, Roorkee, Haridwar, Uttarakhand (India). I have two publication in International peer-reviewed journal and three conference publications. I am skilled in some high-throughput chromatographic techniques like high performance liquid chromatography (HPLC), gas chromatography mass spectrometry (GC-MS) and working with plant metabolites and volatile organic compounds, and MOS based electronic noses and also familiar with AI and ML algorithms.

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