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CHEMICAL ANALYSIS OF VOLATILE CONSTITUENTS OF *FLACOURTIA MONTANA* J. GRAHAM (SALICACEAE) : AN EDIBILE AND WILD FRUIT OF WESTERN GHATS OF INDIA

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Abstract

The volatile constituents of dichloromethane extract of wild edible fruit *Flacourtia montana* J. Graham was analyzed with the aid of GC-MS. 36 compounds were identified, which included alcohols, esters, aldehydes, ketones, furans and nitrogen compounds. The most predominant volatile organic compounds detected were alcohols followed by alkanes, alkenes and esters. Results revealed that the fruit possessed a fruity, citrus like odor with a fatty flavor.

Key words : *Flacourtia montana*, volatile constituents, wild fruit, aroma, flavor.

Introduction

Flacourtia montana is an wild fruit found across Western Ghats in India. The fruit is red globose berry which is sweet to taste and astringent in flavor. Profiling of volatile constituents is necessary to ascertain aroma and flavor of fruits. Wide array of volatile compounds are found in fruits which include alcohols, esters, ketones and aldehydes (Wilson *et al*., 1985). The occurrence of either individual or multiple constituents influences the characteristic flavor of a fruit. Several studies have highlighted the prominence of volatile constituents and their significance (Franco and Janzantii, 2005). Moreover, several biological activities have been attributed to volatile constituents, which find potential applications in food and cosmetics industries. Generally, the volatile profile often differs from fruit to fruit and extraction methods employed (Charles *et al*., 2000). Hence, assessment of volatile constituents provides a deeper insight in determining the aroma and flavor profile of fruit and fruit based products (Sagrero-Nieves and Pooter, 1992; Santos *et al*., 1998). However, till date, no reports exist on volatile constituents of fresh or processed *F. montana* fruits. Hence, the present study for the first time reports volatile constituents of ripened *F. montana*.

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Materials and Methods

Ripened fruits of *F. montana* were harvested from the forest area of Uttara Kannada district in Karnataka, India. Seeds were separated and the pulp from the fruits was extracted using an electric grinder (TTK, Prestige, India). The obtained pulp was stored at -20°C until further processed for chemical analysis. Liquid-liquid extraction was carried out using dichloromethane as solvent following the protocol described (Solis-Solis *et al*., 2007) at 4°C. Further, organic layer was separated and concentrated using rotary evaporator (Ika, Bangalore). Finally, 0.2 µl was injected in gas chromatography-mass spectroscopy (GC-MS).

Gas chromatography–mass spectrometric (GC-MS) analysis of volatile constituents were analyzed using GC (Perkin Elmer, USA) coupled with mass spectrometer (turbo mass) using Helium as a carrier gas with a flow rate of 1 ml/min. 0.2 µl of sample extract was injected into a fused silica column coated with poly di methyl siloxane (30.0 m × 320 µm × 0.25 µm). Column temperature was programmed from 50 to 250°C at an incremental of 2°C/min. Injection temperature was maintained at 150°C and the detector temperature was maintained at 260°C. A split ratio of 1:20 and ionization voltage of 70 eV were maintained. Retention indices for