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Qualitative detection of Naringin from *Bridelia montana* var. *montana* (Roxb.) Willd

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KEYWORDS

Naringin, spectroscopy, *Bridelia montana* var. montana (Roxb.) Willd

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ABSTRACT

Flavanones from *Bridelia montana* var. *montana* (Roxb.) Willd. were extracted by using different solvents. It was identified and detected by Paper Chromatography (PC) and spectroscopic method. Flavanone like naringin was qualitatively detected from *B. montana* var. *montana* (Roxb.) Willd.

Introduction

Naringin belongs to a group of chemicals called bioflavonoids, which are colorful pigment found in plants. Bioflavonoids belong to a larger group of polyphenols. Flavonoids are the most abundant polyphenols in our diets. Naringin is flavanone glycoside. It is a major flavonoid in grapefruit and gives the grapefruit juice its bitter taste. Some bioflavonoids are potent antioxidant and have pharmacological effects similar to those of vitamin E. Naringin exerts a variety of pharmacological effects such as anticancer activity, inhibition of selected drug-metabolizing cytochrome-P450 enzymes (Bear et al, 2000) and blood lipid lowering and antioxidant properties (Choi et al, 2001; Majo et al, 2005). Naringin, followed by rutin, was the most potent flavonoid inhibitor of VEGF release which causes angiogenesis (Da Silva et al; 2001; Schindler et al, 2006). It is most commonly used in the nutrition industry to increase uptake of supplements such as caffeine for added performance (Ballard et al, 2006). *Bridelia montana* var. *montana* (Roxb.) Willd is monoecious branched shrub, branchlets glabrous. Leaves coriaceous, rhombic-obovate, or oblanceolate, green above, paler below. Flowers unisexual, brown few, in leaf axils. Drupes globose, pyrene furrows and found in dry deciduous forests along streams or gullies. The photochemical work of these plants is so scanty but this plant is also source of flavanones. Hence, the present study was undertaken to detection and identification of flavanones in the same plant.

Materials and Methods

Bridelia montana var. *montana* was collected from Bodhadi (Bk.), Dist. Nanded (M.S.), India. It was identified on the basis of the morphological characters up to the species and variety level.

a. Preparation of plant extract for flavanones

The plant material i.e. stems leaves and flowers were dried at 50^{0}C in oven. The dried material was treated with light petroleum ether for 12 hrs. at room temperature and it was filtered through whatman filter paper. The filtrate was concentrated in Rotary vacuum evaporator (R.V.E.) at 40^{0}C to obtain residue. Latex free residue was treated with 80% Ethanol for 24 hrs. at room temperature. Again, it was filtered through whatman filter paper. The filtrate was treated with ethyl acetate and concentrated in R.V.E. and it was used for PC to identification of flavanones. Two chromatograms were prepared and spotted ethyl acetate solution on the proper site of each chromatogram. Spotted chromatograms were dried by Hair dryer. These dried chromatograms were developed in BAW (n-Butanol-Acetic acid-Water, 4:1:5) and 30% acetic acid solvent system, respectively. These papers were dried and identified the color under UV light with fuming of ammonia. The color was identified and calculated R_f values of flavanones.

b. Spectral analysis

The proper bands of each chromatogram was taken and eluted with 95% Ethanol, separately. The elution was continued till the paper become colorless. Each mixture was filtered through whatman filter paper. The filtrate was used for spectrophotometric identification. The absorption spectra of each solution of flavanones were measured by scanning the sample in the region between 300 - 330 nm.

Table 1 Qualitative detection of naringin from *Bridelia montana* var. *montana* (Roxb.) Willd.

Sr. No	Color in UV+ NH_3	R_f value (x 100) in		Spectral *max.* in EtOH (nm)	Flavanones
		BAW	30% HOAc		
1	Yellow-green	59	87	330	Naringin

Result and Discussion

Flavanone like naringin from *Bridelia montana* var. *montana* (Roxb.) Willd was identified and quantitatively detected by paper chromatography and spectroscopic method. Naringin was appeared as yellow-green in color in presence of ammonia fuming under UV light. R_f value of this flavanone was measured as 59 and 87 in BAW and 30% HOAc solvent system, respectively. The spectral value of present flavanone was observed in 95% Ethanol as 330 nm (Table 1).

The flavanones, perhaps because they are colorless compounds, are a rather neglected group of flavonoids. They have been largely ignored in plant surveys but they happen to occur in several economically important plants. *Bridelia montana* var. *montana* (Roxb.) Willd is one of the neglected because of forest habitat but it contain flavanone naringin. This flavanone widely used in medicine because it shows antioxidant, anticancer activity and also prevent the production of angiogenic peptide VEGF in tumor cells. So this plant is also source of flavanones.

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