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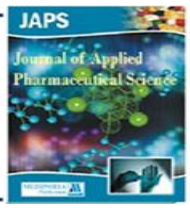

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Short Communication

Isolation of Scutellarein from *Pygmaeopremna Herbacea* Roxb

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ABSTRACT

From the ethyl acetate extract of the plant *Pygmaeopremna herbacea* Roxb. a tetrahydroxy flavone was isolated which on the basis of spectral studies was characterized as 5,6,7,4′- tetrahydroxy flavone (Scutellarein).

Keywords: *Pygmaeopremna herbacea, Verbenaceae, ethyl acetate extract, 5,6,7,4′- tetrahydroxy flavone.*

INTRODUCTION

Plant *Pygmaeopremna herbacea* Roxb. (Family:- Verbenaceae) is an important less known medicinal plant of old forests of India. It is very small shrub 8-10 cm in height (Kanjilal & Gupta, 1956). The roots of *Pygmaeopremna herbacea* Roxb. is claimed to be useful in the Ayurvedic system of medicine for the treatment of several ailments such as rheumatism, snake-bite, scorpion-sting, but it is not an antidote to either snake-venom or scorpion-venom (Chopra *et al.*, 1956; Kirtikar & Basu, 1984; Rao *et al.*, 1985). The different parts of the plant are used as laxative, stomachic, alexipharmic, anemia, diabetes chyluria, inflammation, swelling, bronchitis, dyspepsia, piles, fever, tumours, cold, neuralgia and many other diseases (Ambasta *et al.*, 1986; Rao *et al.*, 1987; Sankaram *et al.*, 1988 a & b; Sandhya *et al.*, 1988; Sankaram *et al.*, 1989). Very little work has been reported in literature regarding the phytochemical studies of this plant.

MATERIAL AND METHODS

The plant was collected from the forest of Gola Gokaran Nath (District-Lakhempur Kheri,U.P.) in the month January 2009.The plant was identified by HOD Botany & Taxonomist, G.F.(P.G.) College Shahjahanpur. A sample specimen was preserved. The air dried, coarsely powdered mass was extracted successively using soxhlet with petroleum ether, benzene, chloroform, ethyl acetate and finally with methanol. Out of these extracts only ethyl acetate extract was considered for further investigation. The extract was concentrated and chromatographed separately over silica gel using different solvents and their mixtures of increasing polarity. Several fractions were obtained in which the similar fractions were pooled together.

The compound was obtained from the column with chloroform–methanol (5:2) as yellow colored solid. The compound gave a positive color test for flavonoids with Mg / HCl.

The compound was characterized as 5,6,7,4'-tetrahydroxy flavone by comparing spectral data ^{1}HNMR ($CDCl_3$); δ 7.13-δ 6.68 (4H,m,H-2′,H-3′,H-5′,H-6′), δ 6.71(1H,s,H-3), δ 5.78 (1H,s,H-8); ^{13}CNMR($CDCl_3$); δ 160.8 (C-2), δ 94.7 (C-3), δ 187.0 (C-4), δ 147.8 (C-5), δ 131.4 (C-6), δ 152.4 (C-7), δ 98.7 (C-8), δ 152.2 (C-9), δ 105.1 (C-10), δ 127.6 (C-1′), δ 122.8 (C-2′), δ 117.6 (C-3′), δ 153.2 (C-4′), δ 117.6 (C-5′), δ 122.8 (C-6′).

RESULT AND DISCUSSION

The I.R. spectrum showed the signals for hydroxy groups at 3400 cm^{-1} and carboxyl function at 1710 cm^{-1} . The ^{1}H NMR spectrum of the compound exhibited characteristic singlet at δ 6.71 assignable to H – 3 proton. Another singlet appeared at δ 5.78 was ascribed to H – 8 proton confirming the trisubstitution of ring A. A multiplet of four proton in aromatic range was due to H-2', H-3', H-5' and H-6' protons of ring B indicating monosubstitution of ring B. The confirmation of the structure was further carried out by ^{13}C NMR spectral studies which showed a downfield signal at δ 187.0 for carbonyl carbon. The hydroxy carbon atoms resonated at δ 131.4 – δ 153.2. On the basis of these finding it was clear that the compounds is flavone bearing four hydroxy groups out of which three are attached to ring A. The compound with comparison of authentic sample characterized as 5,6,7,4'-tetrahydroxyflavone (Scutellarein).

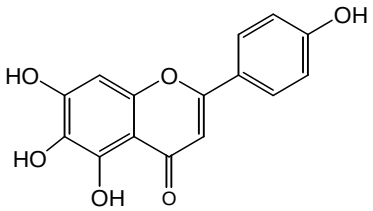

Fig. 1 5,6,7,4'-tetrahydroxyflavone (Scutellarein).

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