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Phenolic Glycoside from root of *Viburnum cylindricum*

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ABSTRACT

From *Viburnum Cylindricum* a phenolic glycoside was isolated and characterized as 1,1 dimethyl propyl-6'-O-trans-caffeoyl -α-D- glycoside by FAB-mass, ^{1}H, ^{13}C NMR.

Key words: *Viburnum Cylindricum,* Capriofoliaceae, Phenolic glycoside, 1,1 dimenthyl propyl-6'-O-trans-caffeoyl-α-D-glucoside and spectroscopic techniquis.

INTRODUCTION

Viburnum cylindricum belongs to the family capriofoliaceace. It is evergreen shrub with grey back leaves oblong lanceolate or ovate glaucous green and occurs in moist shades oak forests between 1200-2500 mt (1) localy use in pain reliever. The phenolic glycoside was

Isolated from V.Dilatatum (2). The glycoside were previously isolated from V.oriental (leaves) and V. Wrightii (leaves) (3 and 4). Some other glycoside were isolated from some species of Scutellaria as S. Prostrata (root), S. Baicalisis (whole plant), S. Alpine (whole plant)
(5 to 7).

MATERIAL AND METHODS

General

Melting point was incorrect. ^{1}H-NMR at (400 MHz). ^{13}C –NMR at (75 MHz) TMS as internal standard, using DMSO as solvent CC was carried out on silica-gel. The used solvent system was $CHCl_3$-MeOH spots were visualized by 7% H_2SO_4 followed by heating.

Plant material

Root of V. Cylindricum was collected from Tangsa Distt-Chamoli of Garhwal. The plant was identified from Department of Botany P.G.College Gopeshwar where bauchar specimen deposited.

Extraction and Isolation

Air dried and coarsely powdered roots of V.cylindricum (2 Kg) was extracted with EtOH. The residue remains after evaporation was chromatographed over silica-gel and eluted with solvents of increasing polarity. Elution of column with methanol-

Chloroform (73:27) afforded compound purified by crystallization in ethanol.

Identification

Identification of compound was done by analysis of the ^{1}H NMR, ^{13}C-NMR and FAB-mass spectra comparison with data from the literature reference (2). The compound showed following spectroscopic data.

Data

Colouress amorphous powder, FAB-m/z. 413$(M+H)^{+}$, ^{1}H-NMR (400 MHz, DMSO) (agycone) δ 2.27 (t, J= 7.2,8.0 Hz) 0.85 (t, J=6.6 Hz), 1.23 (s), (Caffeyl) 6.12 (s), 7.06 (d J=8.0 Hz),(glycone). 4.94(s), 3.25 (d, J=5.2 Hz), 4.26(t, J=6.8Hz), 3.96(dd, J=5.6, 8.8 Hz), 3.82(m), 4.02(dd, J=4.9, 4.0 Hz), 5.55(s,-OH), 5.32 (s, -OH). ^{13}C –NMR (75 MHz, DMSO), (aglycone) δ 65.27 (C_1), 24.09 (C_2), 11.14 (C_3), 14.03(C_4) (Caffeoyal) δ 127.71 ($C_{1''}$), 115.11($C_{2''}$), 149.69($C_{3''}$), 146.81($C_{4''}$), 116.63($C_{5''}$), 114.92($C_{6''}$), 147.25($C_{7''}$), 123.26 ($C_{8''}$), 169.14 ($C_{9''}$), (glycone) 103.77 ($C_{1'}$), 74.93($C_{2'}$), 77.91($C_{3'}$), 71.85($C_{4'}$), 75.54($C_{5'}$), 64.74 ($C_{6'}$).

RESULTS AND DISCUSSION

Compound was obtain colouress amorphous powder from methanol. Its molecular weight calculate 412 from its molecular ion peak at m/z 413 and fragments peak at 91, 95, 107, 136, 149, 154 in FAB-MS and elemental composition showed molecular formula $C_{20}O_9H_{28}$.

^{1}H NMR spectrum of compound showed signals for methylene protons as doublet at δ 4.02 with coupling constant of 4.4 and 4.0 Hz indicate an oxygen bearing methylene proton assigned for H-6 and presence of quadrate at δ 2.27 (J=7.2 Hz) assigned for H-2. Signals for methine proton doublet at δ 7.06 (J= 8.0 Hz) and singlet at δ 6.1 indicated tri-substituted aromatic function for H-5,6' and H-2". Two doublet at 6.96(J=8.4 Hz) and 5.18 (J=3.6 Hz) for H-7" and H-8" unsaturated methane. The position of two singlets at δ 8.29 and 7.73 indicated presence of two aromatic hydroxyl group. The two sharp signals at δ 1.23 and 0.85 singlet and triplet respectively for methyl protons H-3 & H-4. Presence of a singlet at 4.94 indicated anomeric signalet signal showed configuration of sugar as α-linkage in the glucone part. The two singlet at δ 5.55 and 5.32 for hydroxyl group of sugar. These values were again confirmed by ^{13}C NMR spectra, which displayed 19 carbon signals the highly downfield signals at δ 147.25 and 123.26 for α–β unsaturated methin C-7" and C-8" and six peaks at δ 27.71, 115.11, 149.69, 146.81, 116.63, 114.92 for aromatic carbons. The presence of six peak at ä 103.77, 74.93,77.91,71.85, 75.54, 64.74 were coorelated with the sugar moiety.

The identity of compound was compared with the reported data of phenolic Glucosides isolated from *Viburnum dilatatum* (2) and hence it was identified 1,1 dimethyl propyl 6'-O-trans-caffeoyl-α-D-glucoside.

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