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A new iridoid from *Viburnam cylindricum*

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ABSTRACT

From ethanolic extract of *Viburnam cylindricum* plant a new 4 ethoxy 7, 8 dimethoxy, 3'', 5 dimethyl penstamide. Iridoid have been isolated and characterized with help of FAB mass, ^{1}H and ^{13}C NMR studies. These are new studies in chemical analysis of *Viburnam cylindricum.*

Key words: *Viburnam cylindricum ,* 4 ethoxy 7, 8 dimethoxy, 3'', 5 dimethyl penstamide.

INTRODUCTION

Viburnum cylindricum belong to the family Capriofoliaceae evergreen shrubs with grey bark, leaves oblong lanoceolate or ovate glaucous green above occurs in moist shaded oak forest 1200-2500 mt[1]. From leaves of V. Cylindricum Neochlorogenic acid methyl ester, cryptochlonogenic acid ester and chlorogenic acid methyl ester are isolated[2]. From leaves of V. Pronifolium 2- acetyldihydropenstemide, 2'- trans-p-caumrayl dihydropenstemide, 2-acetylpatrinoside and patrinosid are isolated[3]. From leaves of V. dilatatum p- hydroxyphenyl-6-0-trans-caffeoyl-b-D-glucoside, p-hydroxyphenyl-6-O-transcaffeoyl- b-D-apiosyble [1-6]- b-D-glucoside are isolated[4]. From leaves of V. orientale

Acyclic monoterpendiglycosides was isolated[5]. The structure of compounds have been elucidated through. mass, ^{1}H, ^{13}C NMR and 2 D-NMR spectra and their biological activities.

EXPERIMENTAL

General

^{1}H-NMR at (400 MHz),^{13}C-NMR at (75 MHz) TMS as internal standard, using DMSO as solvent column chromatography was carried out on silica-gel 60-120 mesh (Merck). TLC was performed on percolated silica-gel. The eluting solvent was $CHCl_3$-MeOH spots were visualized by 7% H_2SO_4 followed by heating.

Plant material

The whole plant of *Viburnam cylindricum* were collected from Bacchear District. Chamoli Uttrakhand in the month of October and identified by Department Botany, P.G. College Gopeshwar where vaucher specimen was deposited.

Extraction and isolation

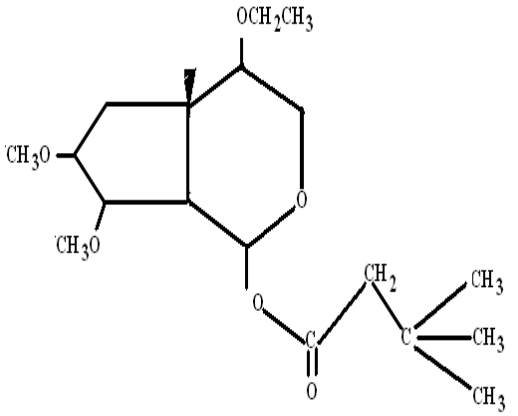
The air dried whole plant (3kg) was exhaustively extracted with 90% aqueous EtOH for 72 hours. The ethanol extract was concentrated to dryness. The dry ethanolic extract was chromatographic over silica-gel using Methanol Chloroform (70:30) as elution solvent which afforded the compound.

RESULTS AND DISCUSSION

Compound was obtain colorurless amorphous power from methanol. Its molecular weight calculated 358 from molecular ion peak in FABMS spectra and elemental composition showed molecular formula $C_{19}H_{34}O_6$. It give positive weffering test indicate the presence of Iridoids.

^{1}H NMR Spectrum of 12 proton signals. Signals for mithine protons a doublet at δ 4.83 [J=5.2

Hz] indicate oxygen bearing H-1, triplet at δ 4.61 [J=4.6Hz] indicate ethoxy bearing H-4, quadrate at δ 3.90 for H-7, two triplet signals at 2.67 [J=6.0 Hz] and at δ 2.27 [J=7.4Hz] for H-8, H-9. Signals for methylene protons as double doublet at δ 4.03 [J=6.8, 4.4 Hz] for oxygen bearing H-3, presence of a triplet at δ 1.51[J=6.8Hz] for H-6 and singlet at δ 2.33 for H-2'' and quadrate at δ 3.63 for H-11. Presence of singlet at δ 1.23 for methyl H-5'' & H-4'', triplet at δ 0.85 for methyl H-12 and singlet at ä 3.33 assinged for methoxyl group H-10. These values was confirmed by ^{13}C NMR spectrum which display 16 carbon signals in which five methine, four methylene, two quaternary, four methyl and one carbonyl carbon signals present. A highly downfied signal C-1'' at δ 174.0 for carbonyl carbon. The presence of upfield methyl of ethoxy group C-12 at δ 13.07, two methyl group attach at quaternory carbons C-4'' and C-5'' at δ 22.91 and 23.10. Two downfield methylene at δ 60.19 and 69.7 for C-11 and C-3 due to direct attachment with oxygen, other two methylene at δ 30.9 and 43.0 for C-6 and C-2''. Two methine downfield signal one at δ 93.1 for C-1 due oxygen bearing from two sides and other at δ 85.1 for C-4 due to attachment of ethoxy oxygen, other methine at δ 43.8, 45.0 for C-8 and C-7 due to attachment of methoxy group and one methine signal at δ 28.3 for C-9. Presence of two signals at δ 36.8 and 43.0 for C-5 and C-2''.



The identity of compound with the reported data of Iridoid glycoside isolated from Viburnum prunifolium[3] and hence it was identified 4 ethoxy 7, 8 dimethoxy, 3'', 5 dimethyl penstamide.

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