Short Communication

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A New Glycoside from *Polianthes tuberosa* Linn.

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Polianthes tuberosa Linn., belongs to the family Liliaceae and is native of America though cultivated in Far East Indo-China. The scales of bulbs are reported to be antiposmadic. These bulbs are also used to treat malaria a decoction of this plant is a remedy for *Gonohorrea* and is used as mutarative polutice (Perry 1980). In view of pharmacological significance of *Polianthes tuberosa,* we carried out phytochemical investigation on butanolic extract of the bulbs of this plant.

The elute obtained in chloroform:methanol (85:15) showed two spots on TLC which were further resolved by HPLC using methanol:water (90:10), the yield was 25 mg.

The molecular weight of compound **1** was determined by FAB Mass spectroscopy, the possitive FAB (MS) showed molecular ion peak at *m/z* 593 $[M+H]^+$. The ion with *m/z* 575 $[M-H_2O+H]^+$ and *m/z* 431 $[M\text{-sugar}+H]^+$ corresponding to $C_{29}H_{50}O_2$. The other intense peak was at *m/z* 413$[M\text{-sugar-}H_2O+H]^+$ which indicated loss of hexose moiety along with water molecule from parent molecule. The IR spectrum showed absorption at 3440-3410 cm^{-1} for hydroxyl group, 3025, 1650 cm^{-1} for trisubstituted double bond and 1440 cm^{-1} for gemdimethyls.

In the ^1H NMR spectrum the characteristic signal for anomeric proton was observed at δ5.06 (d, J = 7.65 Hz), the J value inferred β configuration of the sugar residue. The signals due to two tertiary methyls appeared at 0.65 and 0.93 as singlets. Three secondary methyl groups resonated at δ0.98 (6H, d, J = 6.5 Hz) and at δ1.07 (3H, d, J = 6.5 Hz) 26 and 27 methyls and 21 methyl respectively the olefinic proton resonated as broad singlet at δ5.33.

The sugar moiety shifted the carbinylic proton resonance to δ3.65. Another important feature of ^1H NMR was a triplet at δ4.27 for CH_2OH attached with CH_2 at 28th carbon.

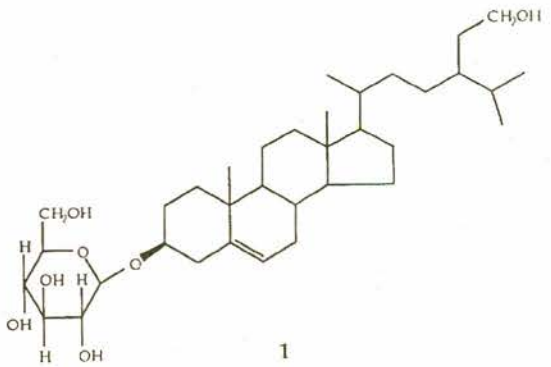
The ^{13}C-NMR spectrum showed the presence of thirty five carbon atoms, out of these six carbon signals were in the glycosidic region corresponding to hexose moiety. The remaining 29 carbon signals were due to aglycon moiety, the anomeric carbon appeared at δ102.4, the olefinic carbon atoms at δ140.7 and δ 121.7 corresponding to endocylic double bond between C-5 and C-6 of sterols (Kubo *et al* 1996).

The comparison of the chemical shift of sugar carbon signals with reported data confirmed the presence of β-D glycoside (Shvets *et al* 1995). The downfield chemical shift value of C-3 of aglycon at δ78.4 showed the linkage of sugar moiety at this carbon.

Conclusive evidence for the structure **1** was provided by its acetylation which yielded a penta acetate product all the five acetyl signals were centered around 2 ppm.

The HRMS yielded aglycon-H_2O peak at 412.3677 corresponding to $C_{29}H_{48}O$. Other prominent peaks were at 394 (M-H_2O-H_2O), 369(M-sugar-C_3H_7), 255 (M-sugar-$C_{10}H_{21}O$ (side chain)) at C-17. Moreover peak at *m/z* 139, 111, 97, 83, 43 were in complete agreement with our proposed side chain.

Key Words: Steroidal glycoside, *Polianthes tuberosa* Linn., Liliaceae, Higher Alcohol.



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