

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 *Gonorrhoea* 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 positive 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 $[M-sugar+H]^+$ corresponding to $C_{29}H_{50}O_2$. The other intense peak was at m/z 413 $[M-sugar-H_2O+H]^+$ 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 δ 5.06 (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 δ 0.98 (6H, d, $J = 6.5$ Hz) and at δ 1.07 (3H, d, $J = 6.5$ Hz) 26 and 27 methyls and 21 methyl respectively the olefinic proton resonated as broad singlet at δ 5.33.

The sugar moiety shifted the carbinyl proton resonance to

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δ 3.65. Another important feature of ¹H NMR was a triplet at δ 4.27 for CH₂OH attached with CH₂ at 28th carbon.

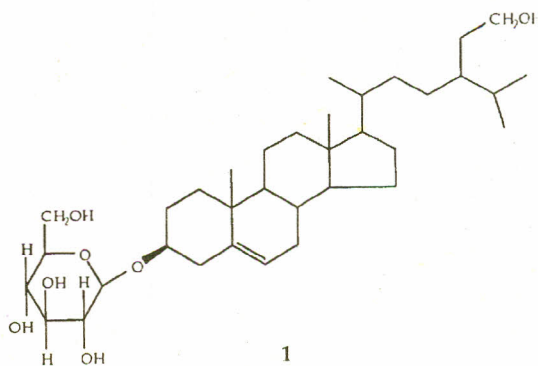
The ¹³C-NMR spectrum showed the presence of thirty five carbon atoms, out of these six carbon signals were in the glycosidic region corresponding to hexose moiety. The remaining 29 carbon signals were due to aglycon moiety, the anomeric carbon appeared at δ 102.4, the olefinic carbon atoms at δ 140.7 and δ 121.7 corresponding to endocyclic 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 δ 78.4 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-H₂O peak at 412.3677 corresponding to $C_{29}H_{48}O$. Other prominent peaks were at 394 (M-H₂O-H₂O), 369 (M-sugar-C₃H₇), 255 (M-sugar-C₁₀H₂₁O (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.



References

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