

NOTE

Saponin from *Streblus asper* Roots

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In the present note, saponin from *Streblus asper* roots has been reported.

Key Words: *Streblus asper* (Lour), α -L-rhamnophranosyl-(1,4)- β -D-glucopyranosyl(1 \rightarrow 3)oleanolic acid.

Streblus asper (Lour)¹ belongs to the natural order Moraceae and is commonly known as *siora* in Hindi. The roots of the plant are reported to possess medicinal properties.

3 kg roots of *Streblus asper* supplied by M/s United Chemicals and Allied Products were air dried, powdered and extracted with petroleum ether (40–60°C). The defatted roots were extracted with 95% ethanol for 30 days. The ethanolic extract (3 L) was concentrated to a brown viscous mass and successively extracted with benzene, chloroform, acetone and methanol. The methanol-soluble part on concentration yielded a viscous mass which on addition of excess solvent ether gave a precipitate which was purified by passing over a column of silica gel when acetone : methanol (2 : 1) yielded saponin (m.p. 180–182°C).

The methanol-soluble part of the rectified spirit extract of the root of the plant when worked up yielded a saponin. Its homogeneity was checked by TLC ($R_f = 0.79$) and was found to analyze for m.f. $C_{41}H_{65}O_{11}$, m.p. 180–182°C, $M^+ 733$, $(\alpha)_D^{22} -63.2^\circ$ (in MeOH).

The saponin on hydrolysis with 7% H_2SO_4 afforded a genin and two sugars identified as L-rhamnose and D-glucose. The genin, m.p. 200–202°C, $(\alpha)_D^{20} -8^\circ$ (in $CHCl_3$), m.f. $C_{29}H_{45}O_2$, $M^+ 425$, was obtained as colourless needles.

The genin responded to characteristic colour reaction of triterpenoid² and was identified as oleanolic acid (by mmp, co-pc, co-tlc with authentic sample) and confirmed by spectral data.

The aqueous hydrolysate obtained by partial hydrolysis of the saponin with 2% H_2SO_4 showed the appearance of L-rhamnose first, followed by D-glucose, thereby showing that L-rhamnose is the terminal sugar.

The acid hydrolysis of the premethylated saponin³ showed the presence of 2,3,4-tri-O-methyl- α -L-rhamnose and 2,3,6-tri-O-methyl D-glucose thus indicating that C-4 of glucose is attached to C-1 of L-rhamnose. Periodate oxidation⁴ of the saponin showed that one mole of D-glucose and 1 mole of L-rhamnose are attached to genin as disaccharide. Enzymatic hydrolysis revealed the presence of β -linkage between genin and D-glucose and α -linkage between sugars.

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