# Isolation of Glanduloside, D-Mannitol and Hentriacontane from Anticharis Glandulosa Aschers.

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Anticharis glandulosa Aschers (family Scrophulariaceae) is found in the rocky areas in the vicinity of Jamshoro and Thano Bula Khan (Distt. Dadu) in the province of Sind after summer rainfall. The plant is locally known as "Lumbo" and is reported as a cure for diabetes mellitus in indigenous medicine[1]. It produces foams when shaken with water and is therefore used by the locals as a substitute for soap for washing clothes and cotton fabrics.

As no previous work has been reported in literature on the chemical investigation of this plant, it was considered appropriate to isolate the active principles present in the plant and further to verify the reported hypoglycemic activity associated with them. The work on pharmacological studies of the plant will be published separately.

During the chemical examination of the plant it was observed that the water soluble portion of the plant extract foamed strongly on shaking, which showed that it contained quite a large amount of saponins[2]. R. Jaretzky and H. Ulrici investigated this family (Scropulariaceae) extensively and reported the presence of glucosides and saponins in many members.[3]

Anticharis glandulosa Aschers was collected from Jamshoro in the month of November and extracted with ethyl alcohol. The residue, obtained after removal of the solvent, was dissolved in water and extracted first with chloroform and then ethyl acetate. The ethyl acetate solution was dried over sodium sulphate (anhyd.) and concentrated to give the crystals of an unknown saponin provisionally named as glanduloside, m.p. 133-35°C. Its i.r. spectrum showed the presence of hydroxyl (3420 $cm^{-1}$) and ester carbonyl (1730 $cm^{-1}$) groups. Glanduloside responded to Salkowsky and Lieberman-Burchard tests for steroids/triterpenoids. On alkaline hydrolysis, it produced an acid m.p. 184-85°C, which had similar i.r. as that of glanduloside except a new band at 1260 $cm^{-1}$ and a shift of the carbonyl band from 1730 $cm^{-1}$ to 1710 $cm^{-1}$ (-COOH). On acid hydrolysis, glanduloside afforded a sapogenin m.p. 80-82°C. (Further work on the structure of glanduloside is in progress).

After extraction with ethylacetate, the aquous solution was dried and digested with hot ethyl alcohol to give needles of D-mannitol, m.p. 163-65°C. Its mixed m.p. with authentic mannitol showed no depression. The i.r. spectra of the two samples were superimposable. The hexa-acetate (prepared by usual procedure) had m.p. 122-24°C which remained undepressed on admixture with a sample of hexa-acetate prepared from authentic D-mannitol. Thus the compound was confirmed as D-mannitol.

The water insoluble portion of the alcoholic extract was dissolved in benzene and purified by passing through a column of neutral alumina (E. Merck). The benzene eluates, on concentrating and cooling, gave plates of hentriacontane $C_{31}H_{64}$, m.p. 67-68°C. It showed i.r. bands at 2950, 2850, 1465, 730 and 715 $cm^{-1}$, characteristic of an aliphatic saturated hydrocarbon. Its mixed m.p. with an authentic sample of hentriacontane was undepressed.

## References

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