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*NOTE*

# Aurone Glycoside Leptosin from the Roots of Vitis Adnata

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The present paper deals with the isolation and study of glycoside leptosin which has been isolated from the roots of Vitis adnata and identified as leptosidin-6-O(B-D-/glucopyranoside).

Vitis adnata is commenly known as Cerapes in Hindi and belongs to the natural order Vitaceae. The roots of *Vitis adnata* were extracted with rectified spirit and after separation of chlorophyll the extract was concentrated under reduced pressure the concentrated residue was found to give blue colour with ferric chloride, indicating the prsence of tannin along with phenolic substances. Tannin was removed from this extract by adding concentrated copper sulphate and filtered. The filtrate consisted of phenolic substances. The phenolic substances were separated by the addition of an alcoholic solution of lead hydroxide. The lead salt was decomposed to get the phenolic glycoside which was taken up in methanol. Concentration of the methanolic extract yielded an amber-coloured deposit which was removed. The filtrate on concentration and studied seprately. The solution on treatment with chloroform, provided an insoluble substance which was further treated with methyl alocohol: chloroform (6:4) and the soluble fraction separated by filtratiion.

## Study of the soluble fraction

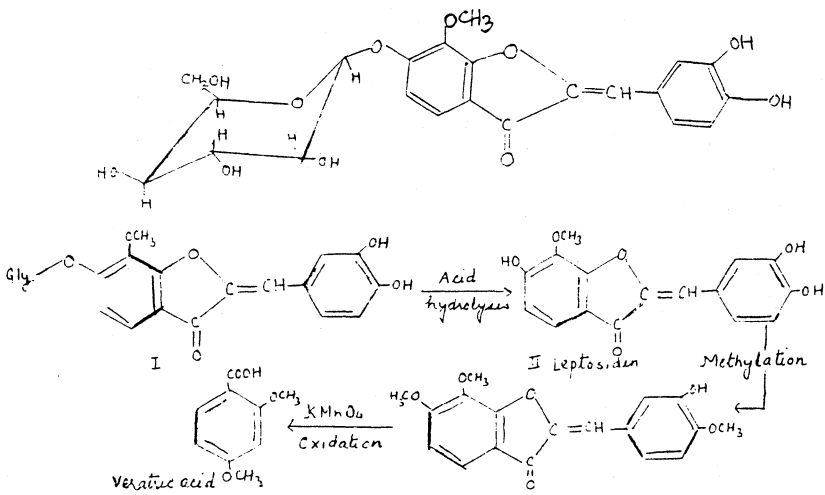
It gave a single spot on TLC and responded to gave positive Benedicts test for glycoside and a colour reaction with ferric chloride thereby indicating its phenolic nature. It showed chracteristic deep purple colour in alkaline solution on hydrolysis with $H_2SO_4$ (4N) it gave aglycone, which on crystalisation gave orange yellow needles mp. 252–254°C. The sugar portion on paper chromatography indicated the presence of glucose (by Co-PC and Co-TLC).

## Study of the Aglycone

The aglycone, mol. formula $C_{16}H_{12}O_6$, m/e = 300, m.p. 230°C showed characteristics colour changes from yellow to orange and finally to red in ammonia indicating it either to be a chalcone derivative or an aurone. It dissolved in dilute sodium hydroxide solution giving a deep red colour with conc. $H_2SO_4$ thereby confirming it to be an aurone derivative.

Peak in the IR at 1740 $cm^{-1}$ indicated the presence of >C = 0 group in it. Other peaks were also observed for the presence of methoxyl and hydroxyl groups. Estimation of methoxyl group by Zeisel's method indicated the presence of one methoxyl group and acetylation showed the presence of three hydroxyl groups.

Mixed melting point determinations, CoOPC, Co-TLC and superimposable spectrat studies indicated its identity of laptosidin (II). Permangnate oxidation gave veratric positions. The UV and IR spectra of the aglycone were found to be superimposable with that of leptosidin as reported in the litrature[3, 4]. These reactions can be well explained by assigning the structure, I and II for leptosin and leptosidin respectively.




## Isolation of the Glycoside

About 4 Kg. of dried and powdered roots of *Vitis adnate* were extracted with rectified spirit in a 10 litre flask, for over a month. The extract was filtered hot and kept in the refrigerator when no depsit was observed. This rectified spirit extract was filtered concentrated under reduced pressure to about 250 mL and again kept in the refrigerator when a syrupy green deposit resembling to the chlorophyll was obtained. To the filtrate a saturated solution of $CuSO_4$ was added and the precipitate was separated by filtration. In the filtrate, a freshly prepared solution of lead hydroxide was added and the precipitate separated out.

The precipitate was washed with water and suspended in ethyl alcohol, hydrogen sulphide was then passed in it and the precipitated lead sulphide was removed by filtration. The filtrate was transferred to a porcelein dish and kept on a water bath till all the hydrogen suphide was removed. The solution was then further concentrated and excess of methanol added to it, when a precipitate was obtained, which was rejected. The filtrate was further concentrated on a water bath and cooled when a tarry layer seprated out which was removed and the clear solution after further concentration treated with excess of chloroform, when a

precipitate was obtained. This precipitate was filtered and treated with chlorofom: methyl alcohol (6:4) and the soluble fraction separated by filtration. The filtrate gave a single spot on TLC plate (solvent-chloroform, developer-iodine) removal of the solvent gave an orange amorphous mass m.p. 230°C.

**Hydrolysis of Leptosin**

leptosin (0.20 gm) and $H_2SO_4$ (20%, 40 mL) were taken in a 100 mL conical flask and refluxed for about 30 h. The mixture was colled and shaken with ether. Evaporation of ether yielded a solid mass which crystallised from aqueous methanol (m.p. 250–254°C).

The aqueous layer was neutralised with $BaCO_3$ and $BaSO_4$, was precipitated which was filtered off and filtrate was concentrated under reduced pressure yielded residue which was sujected to paper chromatography. A single spot corresponding exactly with that of D-glucose ((run as standard showed it to be glucose).

**Methylation of Leptosidine**

Leptosidin (250 mg) was dissolved in (20 mL) spirit and dimethylsulphate (0.5 mL) and $K_2CO_3$ (1 gm) were added to it. The mixture was refluxed for about 24 h and cooled. The reaction mixture was treated with water and extracted with chloroform. Evaporation of chloroform gave leptosidin trimethyl ether m.p. 156–157°C.

**Oxidation of leptosidin Trimethyl ether with $KMnO_4$**

A part of leptosidin trimethyl ether (0.25 mg.) was taken with acetone (40 mL) and $KMnO_4$ (1 gm.) added slowly till permanent purple colour remained for 10 minutes. The solution was cooled and the separated solid filtered. The solid was extracted several times and evaporation of the aqueous extract gave a white crystalline substance which gave no colour with ferric chloride and a m.p. 171°C. It was identified to be veratric acid.

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