

ALBOLIC ACID, A NEW SESTERTERPENIC ACID ISOLATED FROM INSECT WAX*

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Ceroplastol (I) is a novel sesterterpenic alcohol isolated from insect wax Ceroplastes albolineatus.¹ Its molecular structure and absolute configuration have been determined by X ray crystallographic analysis of the 4-p-bromobenzoate.² In our study on the acidic fraction of the insect wax of Ceroplastes albolineatus we isolated ceroplasteric acid² (Ia), together with a new sesterterpenic acid which was called albolic acid (II).

Albolic acid (II), $[\alpha]_D^{25}$ 139 (c, 0.42, CHCl₃) showed infrared absorption at 2850, 1680, 1640 and 925 cm⁻¹; $\lambda_{\text{max.}}^{\text{hexane}}$ 211 m μ , (ϵ , 19,809).

The nmr spectrum** of albolic acid showed the following signals: at 0.70 (s) and 0.80 (d, J = 6.5 cps) for the C₁₁, C₁₅ methyl groups; at 1.60 (s), 1.66 (s) and 1.86 (s) due to the vinylic methyl groups at C₃, C₇ and C₁₉; 3.65 (broad signal) for the C₆ allylic proton and 5.41 (t_r, J = 8 cps) and 6.86 (t_r, J = 8 cps) due to the two olefinic protons at C₈ and C₁₈.

The proposed structure II for albolic acid is supported by the following evidence as well as by biogenetical considerations. Ceroplasteric acid (Ia) was esterificated with diazomethane and after treatment of the methyl ester (Ib) with toluene-p-sulfonic acid in acetone, afforded the methyl ester (IIa), C₂₈H₄₀O₂, $[\alpha]_D^{25}$ 140, (c, 1.63, CHCl₃), (M⁺, 384), showed IR absorption at 2860, 1710, 1640 and 860 cm⁻¹; $\lambda_{\text{max.}}^{\text{EtOH}}$ 210 m μ (ϵ , 19845).

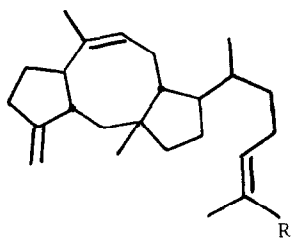
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** Chemical shifts are given in δ values relative to tetramethylsilane.

‡ Correct elemental analysis has been obtained for this compound.

The nmr spectrum of methyl ester IIa showed the following signals: at 0.70 (s) and 0.80 (d, $J = 6.5$ cps) for the C_{11} , C_{15} methyl groups; at 1.66 (s) and 1.86 (s) due to the vinylic methyl groups at C_3 , C_7 and C_{19} ; 3.66 for the methoxyl group and C_6 allylic proton and 5.40 (t_T , $J = 8$ cps) and 6.67 (t_T , $J = 8$ cps) due to the two olefinic protons at C_8 and C_{18} .

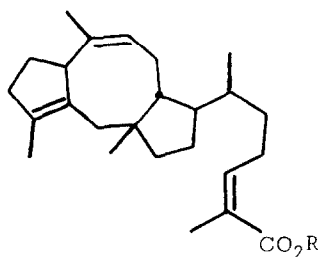
The compound IIa was identical to an authentic sample of albolin acid methyl ester by IR and nmr spectral comparison. An authentic sample of albolin acid methyl ester was prepared by esterification of the acid with diazomethane.



I, R = CH_2OH

Ia, R = CO_2H

Ib, R = CO_2Me



II, R = H

IIa, R = Me

REFERENCES

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