Phytochemistry, 1968, Vol. 7, pp. 495 to 496. Pergamon Press. Printed in England

SHORT COMMUNICATION

INDIAN MEDICINAL PLANTS—XVII.*
PHYTOCHEMICAL EXAMINATION OF *CARISSA SPP*

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(*Received* 5 *July* 1967, *in revised form* 19 *October* 1967)

Plant. Carissa carandas Linn.—Apocynaceae.

Occurrence. Throughout the dry regions of India.

Uses. Roots—bitter stomachic and anthelmintic; leaves—for remittant fever.[1,2]

Previous work. Roots (EtOH extr.),[3] fruits.[4] On sister species, *C. bipinosa*,[5] *C. grandiflora*,[6] *C. ovata*,[7] *C. edulis*,[8] *C. congesta*.[9]

Leaves:—Light petroleum extract after saponification:

(Neutral part chromatographed, alumina):

Lupeol $C_{30}H_{50}O$ (m.p., mxd m.p., $[\alpha]_D$, i.r., TLC of alcohol, acetate and benzoate): from C_6H_6: $CHCl_3$ (1:1) fractions.

β-Sitosterol $C_{29}H_{50}O$ (m.p., mxd m.p., $[\alpha]_D$, i.r. and TLC of sterol, its acetate and benzoate): from $CHCl_3$ fractions.

A triterpene alcohol, m.p. 185–195°, $[\alpha]_D$ +24·7° ($CHCl_3$; c=0·34), ν_{max}^{nujol} 3350 cm^{-1}.

(*Acid* part purified through methyl ester acetate);

Ursolic acid $C_{30}H_{48}O_3$ (m.p. mxd m.p., $[\alpha]_D$, i.r. of acid, methyl ester, methyl ester acetate, benzoate)—Note: benzoylation with benzoyl chloride in pyridine (reflux) also furnished mixed anhydride (chromatographed-acid washed alumina; from light petroleum: benzene; 3:1) in granules (chloroform–pet. ether), m.p. 298–302°, $[\alpha]_D$ +65·57° ($CHCl_3$; c=0·61), ν_{max}^{nujol} 1780, 1725, 1598 cm^{-1} (Found: C, 79·10; H, 8·30 $C_{44}H_{56}O_5$ requires C, 79·46; H, 8·49). Alc. soln. of mixed anh. refluxed 8 hr—ursolic acid benzoate (m.p., $[\alpha]_D$, i.r.).

(Extrctd. C_6H_6 and then $CHCl_3$, evpd.; from Et_2O soluble part): *Ursolic acid, β-sitosterol* by acid hydrolysis. Et_2O insoluble part benzoylated, chromatographed (acid washed alumina):

Methyl ursolate $C_{31}H_{50}O_3$ (m.p., mxd m.p., $[\alpha]_D$; i.r., TLC of ester, ester acetate and

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ester benzoate, oxidation to methyl ursonate[10]) from light petroleum–benzene (1:3) fractions.

(More polar fractions saponified, treated with CH_2N_2 and chromatographed):

Ursolic acid (identified as ester)

New Cpd. A, m.p. 134°, $[\alpha]_D \pm 0°$, *m/e* 145 (base peak), 131, 117, 100, 62, 58, 45. (Found: C, 41·31, 41·14; H, 6·92, 6·96; N, 19·15; $C_5H_{10}N_2O_3$ (acc. to N_2 rule) requires C, 41·09; H, 6·89; N, 19·17) ν_{max}^{nujol} 3275, 1750, 1657, 1205, 1155, 1048 cm^{-1}; λ_{max}^{EtOH} 275 mμ (ϵ=27·3): from $CHCl_3$ eluate.

Stem barks: (Extd. successively with light petroleum, C_6H_6, $CHCl_3$ and chromatographed): *β-sitosterol, lupeol; cpd. A* from acid fractions after CH_2N_2 treatment.

Root barks: As for stems.

Plant. Carissa spinarum—Apocynaceae.

Occurrence. Throughout the drier parts of India, especially in Punjab, Kashmir.

Uses. Roots for purgative action and as an antidote to snake-bite.[1,2]

Previous work. Uncharacterised cardiac glycosides.[8]

Root-bark. (Extr. light petroleum, saponified; Extr. C_6H_6, $CHCl_3$, acid hydrolysis, chromatographed-alumina): *lupeol, β-sitosterol* from neutral part.

Acknowledgements—The authors are indebted to Professor R. B. Arora, Ex-Director of the Institute for encouragement, to the Council of Scientific & Industrial Research, New Delhi for a fellowship to one of us (S.D.), and to Professor C. Djerassi, Stanford, U.S.A. for the Mass spectrum.

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