[Jour. Indian Chem. Soc. Vol. 46, No. 4, 1969]

Chemical Investigation of *Croton caudatus*, Geisel.

Bhim Prasad Pradhan

From the stem bark of *Croton caudatus*, Dotriocotanol, β-amyrin and β-sitosterol have been isolated.

Croton caudatus Geisel[1,2] (Family : Euphorbiaceae), which is commonly called Supari or Halanri by the Nepalees is a climbing shrub available in Eastern Himalayas, Assam and Bengal. In North Bengal it is available in Mixed Forest, Khair and Sissu Forest and in hills up to 4000 ft. It is applied as poultice to sprains.

Stem of *Croton caudatus* was dried, powdered and extracted with benzene. The neutral portion from the benzene extract was chromatographed over alumina. The non-polar fraction was identified as dotriocotanol $C_{32}H_{66}O$, m.p. 89–90°, $[\alpha]_D \pm 0°$ identified as its acetate $C_{34}H_{68}O_2$, m.p. 79°, $[\alpha]_D \pm 0°$. The polar fraction was identified as β-amyrin $C_{30}H_{50}O$, m.p. 197–98°, acetate $C_{32}H_{52}O_2$, m.p. 239–40° (m.m.p.). The most polar fraction afforded a solid $C_{29}H_{50}O$, m.p. 134–6, $[\alpha]_D -36°$ identified as β-sitosterol as its acetate (m.m.p.).

EXPERIMENTAL

The melting points are uncorrected. Petroleum used had boiling range 60–80°. All the rotations were taken in chloroform unless and otherwise stated.

Dried and powdered stem of *Croton caudatus* (1 Kg) was extracted with benzene for 20 hr. The benzene was removed from the benzene extract. The gummy residue obtained was then taken up in ether, washed with 10% aq. NaOH solution and water and the ether solution dried (Na_2SO_4). Evaporation of ether gave a gummy residue (2 g.) which was chromatographed over alumina (80 g. deactivated with 3·2 ml of 10% aq. acetic acid). Petroleum eluted a solid A (0·3 g.), m.p. 80–5° and petroleum : benzene (3 : 2) eluted another solid B (0·2 g.), m.p. 160–70°. Further elution with petroleum : benzene (2 : 3) furnished a solid C (0·5 g.) m.p. 128–32°.

Solid A : *Dotriocotanol* : Solid A on rechromatography and crystallisation from ether gave a solid $C_{32}H_{66}O$, m.p. 88–90°, $[\alpha]_D \pm 0°$, identical in all respects with dotriocotanol (Lit[3] m.p. 88–90°, $[\alpha]_D \pm 0°$) (Found, C, 82·51, H, 14·14. Calc. for $C_{32}H_{66}O$: C, 82·43; H, 14·16%). The acetate prepared in the usual method had m.p. 79°, $[\alpha] \pm 0°$ (Lit[3]. m.p. 79°).

1. Chopra and Chopra, Glossary of Indian Medicinal Plants, C.S.I.R India, 1956, p. 82.
2. Cowan and Cowan, "The Trees of North Bengal", 1929, p. 118.
3. Dictionary of Organic Compounds, Vol. 3, p. 1323, 1965. Revised Edition. Eyre Spottiswoode Publishers Ltd., London.

Solid B : *β-amyrin* : Solid B on crystallisation from chloroform and methanol afforded crystals of *β*-amyrin, m.p. 196–98°, $[\alpha]_D$+80° (Lit[4]. m.p. 199–200°, $[\alpha]_D$+89°). Treatment with pyridine and acetic anhydride furnished a acetate, m.p. 239–40°, $[\alpha]_D$+80° identical with an authentic specimen of *β*-amyrin acetate (m.m.p.) (Lit[4]. m.p. 241°, $[\alpha]_D$+85°) (Found C, 81·78; H, 11·10. Calc. for $C_{32}H_{52}O_2$: C, 81·99; H, 11·18%).

Solid C : *β-sitosterol* : Solid C on crystallisation from chloroform and methanol furnished crystals of *β*-sitosterol, m.p. 135°, $[\alpha]_D$−32° (Lit. m.p. 136·5–37·5°, $[\alpha]_D$−36°). The acetate, m.p. 124–25°, $[\alpha]_D$−37° was identical (m.m.p.) with an authentic specimen of *β*-sitosterol acetate (Lit. m.p. 126–7°, $[\alpha]_D$−42°) (Found : C, 81·64; H, 11·32. Calc. for $C_{31}H_{52}O_2$: C, 81·52, H, 11·48%).

The author's best thanks are due to Prof. H. N. Khastgir, Head of the Chemistry Department, North Bengal University for valuable suggestions, to Dr. S. K. Sengupta, E.I.P.W. Ltd., Calcutta for the optical rotations and to Dr. P. Sengupta, University of Kalyani, Nadia for kindly supplying an authentic specimen of *β*-amyrin acetate. The author is also grateful to the Council of Scientific and Industrial Research, New Delhi for the grant of a junior research fellowship.

Department of Chemistry,
University of North Bengal,
P.O. North Bengal University,
Dist. Darjeeling.

Received June 10, 1968.

4. Simonsen and Ross, "The Terpenes", Cambridge University Press, 1956, Vol. IV, p. 175.