BULL. BOT. SURV. INDIA
Vol. 5, No. 1 : pp. 91, 1963

TRITERPENOIDS II: β-AMYRIN FROM *PITHECELLOBIUM BIGEMINUM* MART.

P. C. MAITI
Plant Chemist, Botanical Survey of India, Calcutta

ABSTRACT

β-amyrin has been isolated from the non-saponifiable fraction of leaves of *Pithecellobium bigeminum* Mart. in 0·01% yield.

Leaves of *Pithecellobium bigeminum* Mart. (Fam.: Leguminosae) although reported as a cure for leprosy (Kirtikar & Basu, 1935) have received very little attention from chemical or pharmacological standpoint. Absence of any alkaloid and presence of some saponin in the hot water extract of leaves were earlier reported (Chakravarti & Ganapati, 1932) but a systematic study was yet to be undertaken.

SYSTEMATIC SOLVENT EXTRACTION

Following fractions were obtained from exhaustive extraction of powdered air-dried leaves with different solvents in succession in a Soxhlet apparatus: petroleum ether (60-80°) 1.8%; chloroform—2.5%; ethyl alcohol—11.7%.

Note of the fractions contained any alkaloid. The alcoholic fraction tested for saponins. The petroleum ether fraction responded to Liebermann-Burchard reaction giving a distinct bluish violet colour changing to deep green.

STUDY ON THE PETROLEUM ETHER EXTRACT

1 kg. of powdered air-dried leaves was extracted with petroleum ether (60-80°) in a 3L. Soxhlet apparatus and the solvent was distilled off. The residue weighing 18.2 gm. was hydrolysed wtth 10% alcoholic potassium hydroxide (500 c.c.) for four hours on a water bath. The hydrolysed mass was poured on a basin and the alcohol was removed on water bath with addition of water. This was then cooled and extracted with ether repeatedly to isolate the non-saponifiable fraction. The ether extract was washed free from alkali, dried over anhydrous sodium sulphate and evaporated. The residue weighed 1.4 gm.

TREATMENT OF THE NON-SAPONIFIABLE FRACTION

The yellowish semi-solid containing lot of crystalline material embedded in it was dissolved in 10 c.c. of benzene and chromatographed over a column of Brockmann alumina (16″ × 0.5″). Three fractions were obtained in different eluents.

Fraction I . . Viscous red mass in petroleum ether

Fraction II Crystalline mass . . . in benzene : Chloroform (1 : 2)

Fraction III Crystalline mass in chloroform

Fraction I: It did not respond to Liebermann-Burchard reagent and was rejected.

Fraction II: On repeated crystallisation from acetone it separated in fine needles m.p. 191-93°; $[\alpha]_D$+89° yield 1.01%. It gave pink colour with acetic anhydride and concentrated sulphuric acid. A chloroform solution of it when treated with tetranitromethane produced a distinct yellow colour.

50 mg. of fraction II was dissolved in 1 c.c. of dry pyridine and 1 c.c. of acetic anhydride was added to it. The mass was heated on water bath under anhydrous condition for 1 hour. The acetate thus prepared was poured on crushed ice and filtered. The residue was crystallised from ethyl alcohol in fine colourless needles, m.p. 239°; $[\alpha]_D$+84°. Fraction II and its acetate closely resembled in physical properties with those of β-amyrin and its acetate. The identity was established through a mixed m.p. determination of an authentic sample of β-amyrin acetate with the acetate of Fraction II and this was found to remain undepressed.

Fraction III: It crystallised from chloroform-methyl alcohol mixture in glistening plates, m.p. 172°, yield 0.002 %. It gave a deep green colour with acetic anhydride and concentrated sulphuric acid. But the quantity was so small that no further work could be undertaken.

Work on the alcoholic extract of the defatted leaves is being continued and attempts are also being made to procure Fraction III in quantity to facilitate its characterisation.

ACKNOWLEDGEMENT

The author records his sense of appreciation for the spirit of co-operation Dr. R. K. Arora, Asstt. Ecologist, Botanical Survey of India, Calcutta has shown in collecting the plant material during his tour in South Kanara against heavy odds.

LITERATURE CITED

KIRTIKAR, K. R. AND B. D. BASU. *Indian Medicinal Plants* Vol. II, p. 946. 1935.

CHAKRAVARTI S. N. AND K. GANAPATI. *Jour. Annamalai Univ.* Vol. 1, 181-85, 1932.