

CHEMICAL INVESTIGATION OF *INDIGOFERA OBLONGIFOLIA*

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Indigofera Linn. (Leguminosae) is a very large genus distributed in the tropical and subtropical regions, even in the poorest soils. The genus is well known for its therapeutic importance (Adam et al. 1972) and contains coumarins (Mueller 1965) and flavonoids (Dominguez et al. 1978). *Indigofera oblongifolia* is antisyphilitic, the roots improve appetite, remove Vatarakta and rheumatism, and also has purgative property. All parts of plants are useful as a remedy in the enlargement of liver and spleen (Anonymous 1959). The stems are used for gargles in mercuric salivations and for washing teeth. In view of its wide ranging therapeutic values, a systematic chemical investigation of *I. oblongifolia* was undertaken.

The dried and powdered stems (1.6 kg) of *I. oblongifolia* collected from Utwan on Sirohi road from Pali were extracted with petroleum ether (60-80°) in a soxhlet for 48 hours. The resulting syrup on removal of the solvent was chromatographed over a column of silica gel using petroleum ether and petroleum ether-ethyl acetate mixtures of increasing polarity. Elution with petroleum ether afforded a compound m.p. 68°C (80 mg). Its IR absorption at 3150 cm^{-1} indicated the presence of a hydroxyl group. Its NMR did not show the presence of aromatic protons and there were peaks in aliphatic region only. The compound was confirmed as psyllostearyl alcohol (Sundix 1911) on the basis of its typical mass spectrum (M^+ 480) and other properties. Further elution of the column with petroleum ether-ethyl acetate (98:2) gave another compound (90 mg) which on crystallization from chloroform had m.p. 84°C. This compound did not show any UV absorption. Its IR spectrum showed the presence of a hydroxyl group. The absence of aromatic signals and appearance of signals in aliphatic region in its NMR spectrum indicated it to be a long chain alcohol. The compound was finally confirmed as n-triacontanol by its typical mass spectrum and comparison with an authentic sample (TLC, m.m.p.). Triacntanol is an effective plant growth regulator which has earlier been isolated from other desert plants such as *Tephrosia falciformis* (Khan et al. 1984) and *Prosopis cineraria* (Khan et al. 1987). The occurrence of triacntanol in *I. oblongifolia* and other plants may hopefully lead to the identification of a potential natural source in the desert plants. Subsequent elution with petroleum ether-ethyl acetate (49:1) afforded β -sitosterol m.p. 145°C (120 mg).

Petroleum ether extract of the roots of *I. oblongifolia* was also chromatographed over a silica gel column. Elution with petroleum ether-ethyl acetate (98:2) afforded white solid which crystallised from chloroform as shining crystals (50 mg), m.p. 285°C (decomp.). The compound gave positive Molisch test and Libermann Burchard reaction, suggesting it to be a steroid glycoside. On hydrolysis, it afforded β -sitosterol and D-glucose. The compound was characterised as β -sitosterol- β -D-glucoside by direct comparison (m.p., m.m.p. & co-TLC) with an authentic sample.

Chemical investigation of *Indigofera oblongifolia* has led to the isolation of ten compounds. Four of these have been characterised as psyllostearyl alcohol, triacontanol, β -sitosterol and β -sitosterol- β -D-glucoside on the basis of spectral and other properties. *I. oblongifolia* is an addition to the desert plants containing triacontanol which is known plant growth regulator.

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