Isolation of *n*-Triacontane, Aliphatic Alcohols and Sitosterols from Convolvulus Microphyllus Sieb

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n-Triacontane, *n*-Hexacosanol, *n*-Octacosanol, *β*-Sitosterol, *Convolvulus microphyllus* Sieb

From the petroleum ether extract of *Convolvulus microphyllus* *n*-triacontane, a mixture of higher aliphatic primary alcohols – *n*-hexacosanol, *n*-octacosanol, *n*-triacontanol and *n*-dotriacontanol, *β*- and *ε*-sitosterols were obtained and characterised by IR, NMR and mass spectral studies and normal methods.

Convolvulus microphyllus Sieb (Convolvulaceae) known as Shevta Shankhpushpi was collected from the College campus during flowering period from April to July. In the indigenous system of medicine it is used [1] as brain tonic, blood purifier, in the treatment of diabetes, haemorrhage, nervous debility, epilepsy and serves as a strong tonic to sharp memory. A perusal of literature reveals that no work seems to have been reported on this species.

The finely powdered plant (2.5 kg) was exhaustively extracted in Soxhlet with hot petroleum ether (60–80 °C). The extract was concentrated to dryness and again extracted with cold petroleum-ether (60–80 °C) and chromatographed over deactivated alumina with petroleum ether (40–60 °C) and its mixture with benzene in the proportions of 3:2 and 1:2 respectively.

The petroleum ether fraction afforded white granules, m.p. 65.5–66 °C.

$C_{30}H_{62}$

Calcd	C 85.31	H 14.69,
Found	C 85.10	H 14.46.

IR bands ν_{max} (KBr) 2950, 2825, 1476, 1372, 735 and 720 cm^{-1}; NMR ($CDCl_3$) δ 0.90 (unsym. t, 6H, CH_3) and 1.25 (br, s, 56H, CH_2); tests for unsaturation and other functional groups were negative. Thus the inertness and the stability of the compound indicated it to be a straight chain saturated aliphatic hydrocarbon and identified as *n*-triacontane.

The fraction obtained with petroleum ether : benzene (3:2) yielded white crystals, m.p. 80–85 °C (C_6H_6 : MeOH, 1:1); IR bands ν_{max} (KBr) 3300–3200 (br), 2910, 2850, 1470, 1375, 1065, 730 and 720 cm^{-1}. TLC examination revealed it to be a mixture of four compounds, which was supported by the mass spectral analysis. The mass spectrum has a base peak at *m/e* 57 with other major peaks at *m/e* 31, 41, 42, 43, 45, 55, 56, 59, 69, 70, 71 ... 336, 364, 392, 420 and 448. The peaks of *m/e* 364, 392, 420 and 448 have relative abundance of 20.4, 42.5, 51.0 and 17.0% respectively. Since the presence of a hydroxyl group was shown by the IR spectrum, therefore, these four peaks in the above proportions cannot be due to any one compound but rather to a mixture of four compounds having [2] the molecular ions of *m/e* 382, 410, 438 and 466. The presence of M^+-18 peaks suggests that the four peaks of *m/e* 364, 392, 420 and 448 are due to olefins formed by elimination [3] of water from four primary alcohols (since IR and mass spectra are characteristic of long chain primary alcohols) of molecular weights 382, 410, 438 and 466 corresponding to *n*-hexacosanol ($C_{26}H_{54}O$), *n*-octacosanol ($C_{28}H_{58}O$), *n*-triacontanol ($C_{30}H_{62}O$) and *n*-dotriacontanol ($C_{32}H_{66}O$) respectively.

The fraction obtained with petroleum ether : benzene (1:2) after rechromatography yielded two compounds. The first compound, colourless plates, m.p. 138 °C (MeOH).

$C_{29}H_{50}O$

Calcd	C 84.06	H 12.08,
Found	C 83.88	H 11.96.

IR bands ν_{max} (KBr) 3480–3280 (br), 2924, 2860, 1645, 1470, 1390, 1060, 1028, 970, 956, 836 and 800 cm^{-1}; NMR ($CDCl_3$) δ 0.68, 0.77, 0.88, 0.95, 0.98, 1.06, 1.16–2.18, 3.33, 3.50 and 5.34; mass spectrum *m/e* 414 (M^+), 399, 396, 381, 273, 255, 231, 213 *etc.*, was found to be identical with an authentic sample of *β*-sitosterol. This was further confirmed by preparation of its acetate, m.p. 128 °C and benzoate, m.p. 144–145 °C. The second compound, colourless needles, m.p. 144–145 °C ($CHCl_3$:MeOH, 1:1) has IR and mass spectra similar to that of *β*-sitosterol. It was identified as *ε*-sitosterol by m.m.p., co-TLC with an authentic sample and preparation of its acetate, m.p. 127–128 °C and benzoate, m.p. 153–154 °C.

The isolation of *n*-hexacosanol and *β*-sitosterol has been reported from *Convolvulus pluricaulis* [4].

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