

An Antifeedant and Insecticidal Steroid and a New Hydroxyketone from *Cassia siamea* Bark

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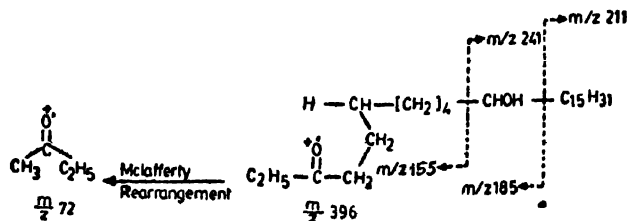
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In the course of our investigation on different species of the genus *Cassia*, we undertook the systematic chemical examination of the trunk bark of *Cassia siamea* (Caesalpiniaceae-Leguminosae) which is reputed in Indian system of medicine¹. Here, we report the isolation and characterisation of a biologically active known steroid and a new hydroxyketone from the trunk bark of the plant collected from Allahabad. The identity of the plant was confirmed by the Botanical Survey of India, Allahabad.

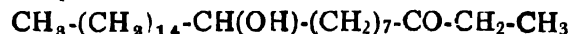
Air-dried and powdered plant material (5 kg) was exhaustively extracted with ethanol (5 × 5 dm³). The extract was concentrated under reduced pressure and poured into ice-cold water (1.5 dm³) to get water-soluble and water-insoluble fractions. The water-insoluble fraction was extracted with different solvents of increasing polarity in a soxhlet. The dichloromethane fraction, on being kept for 24 h, gave a compound-A (280 mg) homogeneous on tlc.

The methanol fraction on repeated column chromatography over silica gel gave compound-B (200 mg) in ethyl acetate eluate. It was also homogeneous on tlc (C₆H₆ : CH₃COOC₂H₅, 1 : 4).

Compound-A had [*M*⁺ 396] m.p. 73° (Found: C, 78.80; H, 13.00. C₂₆H₃₂O₂ calcd. for: C, 78.78; H, 13.13%); ν_{max} 3400 (OH) and 1730 cm⁻¹ (C=O); ¹H nmr δ 0.9 (6H, t, *J* 6.8 Hz, 2 × CH₃), a broad singlet at δ 1.30 (40H, brs, 20 × CH₂), 2.3 (4H, m, CH₂COCH₃) and 3.90 (CHOH) indicating it to be a saturated aliphatic hydroxyketone having 26-carbon atoms; *m/z* 57 [C₈H₅CO]⁺, 72 (due to McLafferty rearrangement), 211 (C₁₈H₂₁), 185 (C₂H₅CO(CH₂)₇CHOH), 241 (C₁₈H₂₁CHOH) and 135 (C₂H₅CO(CH₂)₇), suggesting that the OH group is at C-11.



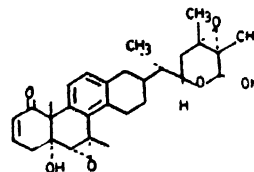
Thus, compound-A was characterised as 11-hydroxyhexacosan-2-one.



This compound is new and is being reported here for the first time from any natural source.

Compound-B had [*M*⁺ 466], m.p. 117° (Found: C, 72.00; H, 7.00. C₂₈H₃₄O₆ calcd. for: C, 72.10; H, 7.20%), gave positive colour test for steroid². The uv, ir, ¹H nmr and mass spectral data showed it to be 6α,7α: 22, 26: 24,25-triepoxy-5,26-dihydroxy-17 (13-18)-abeo-5α-ergosta-2,13,15,17-tetraen-1-one³. Although this compound was reported earlier from the leaves of *Nicandra physaloides* (Solanaceae)⁸, it is reported here for the first time from this plant.

Compound-B has been reported to possess antifeedant⁸ and insecticidal⁴ properties.



Acknowledgement

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