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NOTE

Phytochemical Study of Guar (*Cyamopsis tetragonoloba* L. Taub)

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Cycloartenol, 5-cholesten-3β-ol, 7,11-stigmadiene-3β-ol, 5,7-dimethoxy coumarin and 7-hydroxycoumarin have been isolated from guar (*Cyamopsis tetragonoloba* L. Taub) and characterized.

In course of our study on plant flavonoids[1–3], systematic phytochemical investigation of guar (*Cyamopsis tetragonoloba* L. Taub) has been undertaken.

The dried powdered leaves were extracted with petroleum ether (60–80°C) and concentrated extract was subjected to usual column chromatography over neutral alumina. The early fractions of petroleum ether eluate, after purification by preparative thin-layer chromatography (silica gel-G, C_6H_6 : $CH_3COOC_2H_5$, 9 : 1) furnished two components. Their identity with 5,7-dimethoxycoumarin and 7-hydroxycoumarin was established by direct comparison (co-TLC, co-IR and m.m.p.) with authentic sample.[4, 5]

Further extraction of leaves with chloroform after chromatographic purification afforded a component which responded to Lieberman-Burchard[6] test for steroids. It was characterized as 5-cholesten-3β-ol by comparison (m.m.p. co-IR and co-TLC) with an authentic specimen.[7]

The concentrated chloroform extract of defatted leaves, after chromatographic separation over silica gel-G (benzene : ethylacetate, 9 : 1 v/v) and purification yielded solid (95–100°C), which responded to Lieberman-Burchard test[6]. The identity of this triterpene as cycloartenol has been confirmed by comparison[8, 9] (m.m.p., co-TLC and co-IR) with authentic sample. ν_{max}(KBr): 3440 and 1080 (OH) and 950 cm^{-1} ν(—CH=C—O)[1]; H nmr (90 MHz); δ ($CDCl_3$): 0.32 and 0.55 (1 H, d, J = 4 Hz; cyclopropyl CH_2), 0.98 and 1.37 (12 H, brs, 4X tertiary methyl), 5.3 (1 H, m, —CH=C—), 1.4 and 1.57 (6 H, brs, —CH=C$(CH_3)_2$) and 3.24 (1 H, m, —CHOH).

Chloroform extract of defatted seeds was further subjected to chromatographic purification over silica gel-G (C_6H_6 : $CH_3COOC_2H_5$, 9 : 1). The purified fractions after comparison[7, 10] (m.m.p., co-TLC and co-IR) with an authentic sample have been confirmed as 7 : 11-stigmastadiene-3β-ol.

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