

BAKUCHIOL AND OTHER COMPOUNDS FROM *Psoralea glandulosa*

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Summary: The leaves of *P. glandulosa* contain the active meroterpenoid bakuchiol, as well as angelicin, psoralen and a new cinnamic derivative.

Psoralea glandulosa L. (Leguminosae, Papilionaceae) is a little tree endemic to Chile, where is known with the trivial name of "culén". The study of its constituents is limited to the seeds from which two coumarins, angelicin and psoralen, have been reported¹. In the Chilean folk medicine the decoction of the leaves is used against the intestinal worms and as topical remedy for wounds².

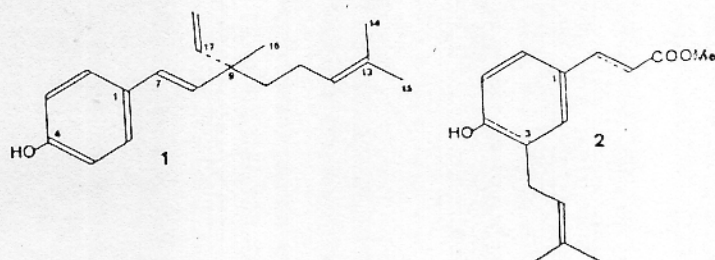
EXPERIMENTAL

Isolation of the constituents. The plant material was collected near Santiago de Chile on November and identified by Dr. I. Latorre de la Cruz, Universidad de Chile. Dried leaves (60 g) were extracted with petrol at room temperature. The extract (3.3 g) was chromatographed on Si-gel with CHCl₃. Triglycerides (450 mg), bakuchiol (1.550 g), angelicin (50 mg), psoralen (30 mg), drupanin methylester (50 mg) and fatty acids (1 g) were eluted successively. The coumarins were identified according to their physical and spectral data and confirmed by comparison with authentic specimens.

Bakuchiol 1: pale yellow oil; $[\alpha]_D^{25} + 32^\circ$; ¹H NMR (60 MHz, CDCl₃): δ 7.17 (H-2, H-6; J 8 Hz), 6.70 (H-3, H-5; d, J 8 Hz), 6.10 (H-7, H-8; q, J 16.5 Hz), 6.0-5.60 (H-17, dd), 5.15 (H-12, broad t), 5.10-4.80 (H2-18, m), 2.20-1.30 (H2-10, H2-11; m), 1.63 and 1.55 (Me-14, Me-15; broad s), 1.13 (Me-16, s); ¹³C NMR-APT (100 MHz, CDCl₃): δ 154.74 (C-4), 146.02 (C-17), 135.80 (C-7), 131.33, 130.80 (C-1, C-13), 124.42 (C-2, C-6), 125.60, 124.92 (C-8, C-12), 115.55 (C-3, C-5), 111.95 (C-18), 42.57 (C-9), 41.35 (C-10), 35.76 (Me-15), 23.42 (Me-16), 23.30 (C-11), 17.70 (Me-14); MS, m/z (%): 256 (M⁺, 52), 173 (100).

Acetylbakuchiol. C₂₁H₂₈O₂; ¹H NMR, δ 2.22 (OAc, s). **Methylbakuchiol** (CH₂N₂); ¹H NMR, δ 3.73 (OMe, s).

Drupanin methylester, 2: colourless oil; ¹H NMR (60 MHz, CDCl₃): δ 7.63 (H-b, d, J 16 Hz), 7.30-7.20 (H-2, H-6; m), 6.80 (H-5, d, J 8.5 Hz), 6.27 (H-a, d, J 16 Hz), 5.80 (OH, broad s), 5.27 (CH, broad t, J 7 Hz), 3.78 (OMe, s), 3.33 (CH₂, broad, J 7 Hz), 1.78 (Me X2, broad s). MS, m/z (%): 246 (M⁺, 78), 191 (100).



RESULTS AND DISCUSSION

The petrol extract of the leaves of *P. glandulosa* gave bakuchiol, **1**, as the main component (2.6% of the leaves) and little amounts of angelicin, psoralen and drupanin methylester, **2**. All the compounds have been identified by the spectral data, including the ¹³C NMR spectrum of **1** not reported previously. This is the first report drupanin methylester, whilst the corresponding acid occurs in *P. drupacea*³. The meroterpenoid bakuchiol has been reported from the seeds of *P. corymbifolia*⁴. In addition to antimicrobial activity^{5,6}, bakuchiol exhibits juvenile hormone⁷ and highly antimutagenic⁸ properties. Jointly, these activities justify the use of *P. glandulosa* in the Chilean folk medicine.

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