

A TIGLATE ANALOGUE OF ZINAFLORENE II ISOLATED FROM
ZINNIA PERUVIANA

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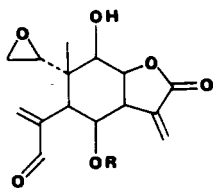
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ABSTRACT.—*Zinnia peruviana* afforded a new 9-hydroxyzinnolid with a tiglate ester at C-6. The compound was correlated with zinaflorine II.

Previous phytochemical research of the genus *Zinnia* showed the presence of ester and hydroxyl groups at C-6 and C-9 (1,2). Recently the structure of zinaflorine II [1] was established (3). Here we report the isolation of a new tiglate analogue, zinaflorine IV [2], from *Zinnia peruviana* L. (Compositae).



- 1 R = angeloyl
2 R = tigloyl

EXPERIMENTAL

PLANT MATERIAL.—*Z. peruviana* was collected around the beach of Lago de Chapala, Jalisco, México, in September 1984. A voucher specimen (MEXU-440977) was deposited in the Herbario Nacional del Instituto de Biología de la Universidad Nacional Autónoma de México.

EXTRACTION, SEPARATION, AND IDENTIFICATION.—Powdered, dried aerial parts of *Z. peruviana* (3 kg) were extracted with EtOAc (6 liters). The residue from EtOAc (50 g) was fractionated on a Si gel (Merck 70–230 mesh) using *n*-hexane and mixtures of hexane/EtOAc as eluents. From fractions eluted with hexane/EtOAc (3:1) was obtained, after preparative tlc on Si gel (Merck F 254), a crystalline compound, which after crystallization from EtOAc/hexane, yielded a pure compound as white needles (100 mg): mp 190–192° (uncorrected); $[\alpha]_D^{25} +96.2$ ($c = 5.1$, EtOH); uv (EtOH) λ max nm (log ϵ) 212 (4.372);

ir ν cm^{-1} (CHCl₃) 3620, 3440 (OH), 1775, 1250 (ester), 1700 (aldehyde), 1650 (double bond); ¹H nmr (80 MHz, CDCl₃), δ 9.4 (s, 1H, H-15), 6.83 (m, 1H, H-tiglate), 6.56 (s, 1H, H-13), 6.20 (s, 1H, H-3'), 6.26 (d, 1H, $J_{13-13'} = 4$ Hz, H-13), 5.68 (d, 1H, $J_{13'-13} = 4$ Hz, H-13'), 5.41 (dd, 1H, H-6), 4.85 (dd, 1H, $J_{8-7,8-9} = 4$ Hz, H-8), 4.02 (d, 1H, $J_{9-8} = 4$ Hz, H-9), 3.84 (d, 1H, $J_{5-6} = 4$ Hz, H-5), 3.38 (m, 1H, H-7), 3.09 (t, 1H, $J = 4$ Hz, H-1), 2.60 (m, 2H, H-2, H-2'), 1.85 (s br, 6H, Me-tiglate), 1.02 (s, 3H, H-14); eims (10 eV) m/z [M]⁺ 376 (0.1), [tigloyl group] 83 (100).

SPECTRAL DATA.—The eims, ir, and uv spectra of zinaflorine IV resemble those previously reported to establish the structure of zinaflorine II (3). However, the ¹H-nmr spectrum of zinaflorine IV showed the same chemical shifts for most of the protons except for those corresponding to an angeloyl group at C-6 in zinaflorine II, which were replaced in the spectrum of the new compound by the characteristic signals at 6.67 ppm corresponding to a tigloyl group (4). In the light of these results we propose that this compound is the C-6 tiglate analogue of zinaflorine II. To our knowledge, this is the first report of such a compound in the genus.

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