

2,4,5-TRIMETHOXYSTYRENE, A BIOACTIVE COMPONENT OF THE BARK OF
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Screening of bark samples of the uninvestigated *Duguetia panamensis* Standley (Annonaceae), using brine shrimp lethality (1) as a bioassay, detected biological activity (LC₅₀ 139 ppm) in EtOH extracts. Solvent partitionings and chromatography, monitored by tlc and the brine shrimp assay, led to the isolation of 2,4,5-trimethoxystyrene as the major bioactive component. Structural elucidation was determined using ¹H nmr, ms, ir, uv, and mp. This compound was, surprisingly, quite toxic to brine shrimp (LC₅₀ 8 ppm, 95% confidence intervals 5–12 ppm), but only weak cytotoxic activity (2) was found (9KB ED₅₀ 42 µg/ml, 9PS ED₅₀ 27 µg/ml). This simple styrene has been previously reported from *Pachypodanthium staudtii* Eng. et Diels. (Annonaceae) and *Peperomia pellucida* HBK (Piperaceae) (3).

EXPERIMENTAL

PLANT MATERIAL.—Bark of *D. panamensis* was collected in Panama and identified by I.A. Valdespino, Herbario de la Universidad de Panama, where a specimen is maintained. The air-dried bark was pulverized through a Wiley mill.

ISOLATION AND IDENTIFICATION.—The plant material (58 g) was extracted with 95% EtOH; the EtOH residue was partitioned between CHCl₃ and H₂O, and the CHCl₃ residue was partitioned between hexane and 10% H₂O in MeOH. Cc (Si gel, CHCl₃) followed by preparative tlc (hexane-EtOAc, 3:1) and recrystallization (hexane) gave 24 mg (0.005% yield) of the compound. The fractionation was guided throughout with the brine shrimp bioassay (1), and the cytotoxicities (9KB and 9PS) were determined at the Purdue Cell Culture Laboratory (2). Through mp, ir, uv, eims, and ¹H nmr the bioactive compound was identified as 2,4,5-trimethoxystyrene (3). Experimental details are available upon request to the senior author.

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