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JUSTICIDIN B, A CYTOTOXIC PRINCIPLE FROM *JUSTICIA PECTORALIS*

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Justicia pectoralis Jacq. (Acanthaceae), a native to tropical America, is used in folk medicine for several diseases. Decoctions of the whole plant are used by Puinave Indians to treat pulmonary infections (1). In Central America and the West Indies, it is used to relieve cough and as an expectorant or sudorific (2,3). Also, leaves, mixed with bark resin of *Virola* species, were used as an ingredient in hallucinogenic snuff (4). The presence of coumarins and the absence of lignans from *J. pectoralis* var. *stenophylla* Leon. collected in Peru have been reported (4).

We report the isolation of a 1-aryl-2,3-naphthalide lignan (justicidin B) from *J. pectoralis* samples collected in French Guyana. This lignan is known in several other Asiatic *Justicia* species (5,6) and other sources such as *Phyllanthus* (Euphorbiaceae) (7) and *Sesbania* (Fabaceae) (8). Justicidin B has been found to be active in vitro (9PS ED_{50} 3.3 μg/ml, 9KB ED_{50} 7.3×10^{-2} and 1.2×10^{-2} μg/ml) (7,8), but in vitro cytotoxicity in NSCLCN6 (bronchial epidermoid carcinoma cell line of human origin) (9) has not been reported. We found activity in NCI murine P-388 lymphocytic leukemia (PS system) comparable to published results (7), but the compound is weakly active in NSCLCN6.

EXPERIMENTAL

PLANT MATERIAL.—*J. pectoralis* was collected in French Guyana in June 1984. Voucher specimens are deposited in the Herbarium of the Faculté des Sciences Pharmaceutiques, Université Toulouse III, France.

EXTRACTION AND ISOLATION OF JUSTICIDIN B.—Dried, whole plants (600 g) were Soxhlet extracted with EtOH. The EtOH residue was chromatographed on an Amberlite XAD2 column with MeOH/H_2O mixtures of decreasing polarity. The MeOH-H_2O (80:20) fraction furnished justicidin B that was purified by chromatography on Si gel with $CHCl_3$-MeOH (98:2) followed by centrifugal circular tlc on Si gel with hexane-EtOAc (95:5). Justicidin B (53 mg) was washed with MeOH and then crystallized from cyclohexane. Justicidin B was compared with an authentic sample (mp, uv, ir, ^1H nmr, ms) isolated from *Phyllanthus subglomeratus* (10).

BIOLOGICAL ACTIVITY.—In vitro testing against the murine leukemia P-388 (9PS) was conducted according to NCI procedures (11). In vitro cytotoxicity in NSCLCN6 was assayed by the following procedure: tests were conducted in 96-hole microplates (flat bottom microtest III plate with lid-Falcon 3072); 0.07×10^5 cells were placed in each hole containing 50 μl of RPMI medium supplemented with 10% fetal bovine serum. The therapeutic solution to be tested (50 μl) was added in decreasing concentration at the ratio of two holes for each dose. Microtest plates were incubated for 72 h at 37° in 5% CO_2 in air. The cell proliferation was estimated by colorimetric and immunological methods (12). Justicidin B showed the following activity: P-388 (9PS) ED_{50} 3.3 μg/ml, NSCLCN6 IC_{50} 28 μg/ml.

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