LINDELOFINE AND SUPININE: PYRROLIZIDINE ALKALOIDS FROM EUPATORIUM STOECHADOSMUM*

T. FURUYA and M. HIKICI
School of Pharmaceutical Sciences, Kitasato University, Minato-ku, Tokyo, Japan
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Key Word Index—Eupatorium stoechadosum; Compositae; pyrrolizidine alkaloids; lindelofine; supinine.

Plant. Eupatorium stoechadosum Hance (Fujibakama in Japanese)—Compositae.
Source. The Mizumoto park, Tokyo, Japan. Voucher Specimen is deposited in the Herbarium of this University. Uses. For incense and diuretic. Present work. Coumarins,1 quinones1 and phenolic products, such as eupatorin.2 Previous work. The MeOH extract of the dried roots (15 kg) was shaken with 2 N H2SO4, the acidic solution was reduced with zinc dust and filtered. The filtrate was then made alkaline with ammonia and extracted with CHCl3. The CHCl3 solution was evaporated to obtain a crude alkaloid (18-0 g). The chromatography on silica gel with CHCl3–MeOH–28% NH4OH (60:10:1) gave two crystalline compounds, which were recrystallized to give 1.2 g of colorless needles, m.p. 102–103° (from light petrol.), C13H22O4N1, [a]D + 50-1° (EtOH) and 0.02 g of colorless needles, m.p. 142–144° (from acetone), C15H25O4N1 c.d. [a]D + 4774 (MeOH), respectively. The former was estimated as lindelofine3 from TLC, IR, NMR and MS data and identical with lindeloflne from the chemical hydrolysis that gave (+)-trachelantic acid, m.p. 88-89°, [a]D + 3.3° (EtOH) and (+)-isoretonecanol, 38-40°, [a]D + 76.4° (EtOH), picrate m.p. 188–189°. The latter was also estimated as supinine4 from TLC, IR, and MS data and identical with an authentic sample of supinine by m.m.p. and IR spectra. The dried terrestrial parts (8.2 kg) yielded 2-O g of crude alkaloid which contained almost lindelofine.

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† Molecular formulae were measured by high resolution mass spectrometer and the analytical values were in good agreement with the theoretical values.

1 G. SHIMADA and T. SAWADA, Yakugaku Zasshi 77, 1246 (1957).