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Note

High-speed liquid chromatographic separation of some *Strychnos* alkaloids

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Bisset and his co-workers have studied the separation of some *Strychnos* alkaloids by means of thin-layer chromatography (TLC)¹ and gas-liquid chromatography (GLC)². Since we had obtained a fairly good separation of a series of alkaloids by high-performance liquid chromatography (HPLC)^{3,4}, we found it of interest to try this technique for the separation of a number of alkaloids related to strychnine.

EXPERIMENTAL

The analyses were carried out on a Packard Model 8200 liquid chromatograph equipped with a UV detector (the wavelength 254 nm was used) and a stainless-steel column (30 cm × 2 mm I.D.) filled with Merckosorb Si 60 (5 μm); the balanced-density slurry technique was used for filling the column. The column temperature was maintained at 20°. The solvents used (diethyl ether, methanol and diethylamine) were *pro analysi* grade (Baker). The analyses were carried out at a flow-rate of 2.00

TABLE I
RETENTION TIMES OF SOME *STRYCHNOS* ALKALOIDS
Column conditions as specified in Experimental.

Alkaloid	Retention time (min) in solvent system	
	I	II
Icajine	4.2	2.6
Vomicine	4.6	1.6
Pseudostrychnine	6.8	
Strychnine	7.2	12.4
4-Hydroxystrychnine	7.6	
α-Colubrine	8.8	14.3
Spermostrychnine	9.8	
β-Colubrine	10.3	10.2
Diaboline	16.0	10.9
Brucine	18.4	17.6
Serpentine	> 20	
Alstonine	> 20	

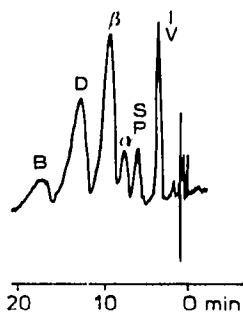


Fig. 1. Chromatogram of some *Strychnos* alkaloids in solvent system I (see text). I = Icajine; V = vomisine; S = strychnine; P = pseudostrychnine; α = α -colubrine; β = β -colubrine; D = diaboline; B = brucine.

ml/min at a pressure of 205 kg/cm² for solvent system I (diethyl ether containing 1 % of diethylamine) and at a flow-rate of 1.15 ml/min at 200 kg/cm² for solvent system II [diethyl ether-methanol (1:1)].

DISCUSSION

The separation of 12 *Strychnos* alkaloids related to strychnine by means of HPLC is shown in Table I and Fig. 1. When the results are compared with the separations obtained by Bisset and co-workers with TLC¹ and GLC², the following differences are observed: diaboline is retained more in HPLC than in TLC, perhaps because of the higher amount of diethylamine used in TLC; and α -colubrine and β -colubrine, which could not be separated completely with GLC or TLC, are well separated by HPLC. Although fairly good separation of α - and β -colubrines could also be obtained in a neutral solvent system (system II), tailing made this system less useful because of the acidic properties of the silica gel⁴.

REFERENCES

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