

SEPARATION OF SOLASODIENE FROM SOLASODINE BY
POLYBUFFER DISTRIBUTION

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The alkaloid solasodine, obtained by the hydrolysis of the glycoalkaloids from certain nightshades—solasonine and solamargine—can be used for the production of cortisone. In addition to solasodine, solasodiene which is an undesirable contaminant, is formed [1-3]. The application of polybuffer distribution [4-7] to a mixture of solasodine and solasodiene obtained by the hydrolysis of the glycoalkaloids under severe conditions has shown that solasodiene is retained by a phosphate buffer solution with pH 2.5-3, while solasodine is not retained; moreover, a buffer solution with pH 4.5 retains the very small amounts of three other alkaloids (R_f 0.26, 0.38, 0.48) present in the mixture. The R_f values were determined in the butanol-5% acetic acid (1:1) system (table).

Funnel number	Buffer fractions			Chloroform fractions		
	pH	Substance, g	R_f	Fraction No.	Substance, g	R_f
1	4.5	0.30	0.26; 0.38; 0.48 not shown on the chromatogram	1	0.60	0.91
2		traces		2	1.10	0.90
3		"		3	0.20	0.90
4		0.10		"	4	0.30
5	2.5	0.20	0.78	5	0.15	0.93
6		0.65		6	0.15	0.93
7		0.15		7	0.05	0.93
8		0.10		0.78		

Thus, 4.8 g of a mixture of the alkaloids mentioned was separated by the grid-polybuffer method [8, 9]. The mixture in 200 ml of chloroform was passed through eight separating funnels filled with 5% phosphate buffer solution. To wash the latter, seven 200-ml portions of chloroform were used. The buffer fractions were separately made alkaline with ammonia and exhaustively extracted with chloroform. This gave 2.65 g of solasodine (55.2%) and 1.10 g of solasodiene (22.9%). The solasodine had R_f 0.91-0.93 and the solasodiene R_f 0.78.

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