Studies on *Catharanthus lanceus* (*Vinca lancea*) I. Isolation of Leurosine, Perivine, and Yohimbine

Sir:

Demonstration of reproducible anticancer activity by extracts from *Catharanthus roseus* (*Vinca rosea*) against the P-1534 leukemia in DBA/2 mice prompted Svoboda, *et al.*, to initiate intensive phytochemical studies on this plant to establish the nature of the substance(s) responsible for this activity. These investigators have reported on the isolation of more than 40 alkaloids from *C. roseus*, including four with oncolytic activity: vincaleukoblastine (1),[1] leurosine (3), leurocristine, and leurosidine (4).

Two of these alkaloids are now available for use in the treatment of Hodgkin's disease,[2] choriocarcinoma,[2] and acute leukemia in children.[3]

We have initiated studies on leaf material from a related plant, *Catharanthus lanceus*,[4] using the alkaloid fractionation scheme reported by Svoboda, *et al.* (5). Alumina chromatography of the (*A*) fraction has yielded leurosine and perivine, previously reported only from *C. roseus* (3) in addition to yohimbine which has been reported from *C. lanceus* roots (6) and several other sources. The identity of these alkaloids was established by comparison of certain physical data to that of reference material. The data used were derived from infrared and ultraviolet absorption spectra, electrometric titrations, X-ray powder diffraction patterns, melting point and mixed melting point determinations, and thin-layer chromatographic studies. Details concerned with the isolation of these three alkaloids and others will be published at a later date.

It is also of special interest to communicate that leurosine, an alkaloid reported effective against the P-1534 leukemia in DBA/2 mice (7), was isolated in the course of our investigation from an alkaloid fraction which on replicate testing proved ineffective in producing a prolongation of life against this tumor system. This confirms a previous report by Svoboda indicating that alkaloids highly active against the P-1534 leukemia can be present in crude fractions which exhibit limited or negative antitumor activity under identical test conditions (4). Svoboda has advanced that this anomaly could be due to toxic inactive material being present in crude mixtures which also contain active anticancer alkaloids (4).

This confirmation of the isolation of an active oncolytic alkaloid from an inactive crude fraction, suggests that a reevaluation of current test methods used for the detection of anticancer activity in crude botanical extracts is necessary.

[1] First reported by Noble, Beer, and Cutts (2).

[2] Marketed as Velban (vinblastine sulfate) by Eli Lilly and Co., Indianapolis, Ind.

[3] Marketed as Oncovin (vincristine sulfate) by Eli Lilly and Co., Indianapolis, Ind.

[4] The *Catharanthus lanceus* (Boj. *ex* A. DC.) Pich. leaves used in this study were collected in Madagascar and supplied by the S. B. Penick Co., New York 8, N. Y. An authentic herbarium specimen of the material used in this study has been deposited at the above address.

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