Wilforine

Keyphrases ☐ Wilforine—duplicated nomenclature for two structurally different compounds ☐ Nomenclature duplication—wilforine used to identify two structurally different compounds

Sir:

Recently, Hayashi and Mitsuhashi (1) reported on the separation and structure determination of a new pregnane derivative from *Cynanchum wilfordi*, to which they assigned the trivial name wilforine.

An alkaloid of as yet undetermined structure was isolated by Beroza (2) in 1952 from the unrelated plant *Tripterygium wilfordii*, which he named wilforine. The same alkaloid was more recently isolated from *Maytenus senegalensis* (3).

Since these two substances are obviously dissimilar, the identical naming of them has created confusion in the literature. The product from *C. wilfordi* should be renamed by Hayashi and Mitsuhashi in subsequent publications.

(1) K. Hayashi and H. Mitsuhashi, *Chem. Pharm. Bull.*, **20**, 2065 (1972).

(2) M. Beroza, *J. Amer. Chem. Soc.*, **74**, 3656(1952).

(3) M. Tin-Wa, N. R. Farnsworth, H. H. S. Fong, R. N. Blomster, J. Trojánek, D. J. Abraham, G. J. Persinos, and O. B. Dokosi, *Lloydia*, **34**, 79(1971).

NORMAN R. FARNSWORTH
Department of Pharmacognosy and Pharmacology
College of Pharmacy
University of Illinois at the Medical Center
Chicago, IL 60612

Received March 2, 1973.
Accepted for publication March 23, 1973.

Antitumor Agents V: Effect of Epoxidation on Cytotoxicity of Helenalin-Related Derivatives

Keyphrases ☐ Helenalin derivatives—epoxidation, effect on cytotoxicity ☐ Epoxidation of helenalin derivatives—effect on cytotoxicity ☐ Cytotoxicity, helenalin derivatives—effect of epoxidation on activity ☐ Structure–activity relationships—helenalin derivatives, epoxidation and cytotoxicity

Sir:

In connection with our study of the structure–activity relationships among helenalin (I)-related sesquiterpene lactones for cytotoxic or antitumor activity (1–3), we wish to report a preliminary account of the effect of epoxidation on cytotoxicity of helenalin-related derivatives.

The epoxy function is a structural feature commonly found in many naturally occurring sesquiterpene lactones. It is well known that certain classes of synthetic compounds (4), as well as naturally occurring substances, owe their antitumor or cytotoxic activity to the introduction of the diepoxide or triepoxide functionality; *e.g.*, the cyclohexane diepoxide, crotepoxide (5); the sesquiterpene dilactone diepoxide, mikanolide (6, 7); and the diterpene triepoxides, triptolide and tripdiolide (8). With this in mind, it has been inferred that one important factor governing the cytotoxicity of the sesquiterpene lactones could be due to the introduction of the epoxy group. The epoxy group might act as a second alkylating function in addition to the essential alkylating center, the α-methylene-γ-lactone moiety (1, 9, 10). However, it was suggested (6) that cytotoxicity appears to be independent of the presence or absence of an epoxy group, although this conclusion was based upon only a small number of examples.

We felt that the role of the epoxide function with respect to the effect upon cytotoxicity should be further

Table I—Cytotoxicity of Helenalin-Related Derivatives

Number	Compound	Reference	ED_{50}, mcg./ml. (H.Ep.-2)
I	Helenalin	1–3	0.10
II	2,3-Epoxyhelenalin	—[a]	0.11
III	2,3,11,13-Diepoxyhelenalin	—[a]	0.50
IV	2,3-Epoxyhelenalin dimethylamine adduct	—[a]	1.36
V	2,3-Dihydrohelenalin	2	3.84
VI	2,3,11,13-Tetrahydrohelenalin	2	>40
VII	2,3-Dihydrohelenalin dimethylamine adduct	2	6.04

[a] K. H. Lee, S. H. Kim, H. Furukawa, C. Piantadosi, and E. S. Huang, unpublished data.