the stimulating electrodes. Respiration and arterial pressure were charted on a direct-writing polygraph.

In all bilaterally vagectomized dogs, centripetal electric stimulation (0.1–0.3 ma.) of either vagosympathetic trunk at the cervical level always resulted in a systemic arterial pressor response and apnea. In Fig. 1, it can be seen that vagal afferent stimulation similarly produced a rise in the femoral arterial pressure, whereas stimulation of the peripheral end of the sympathetic portion of the trunk with comparable stimulus parameters had no effect on the systemic pressure. The apnea induced by vagal afferent stimulation was absent on stimulation of the sympathetic efferents. A functional verification of the nature of the fiber groups is also afforded by the fact that this same stimulus produced dilatation of the ipsilateral pupil only when applied to the fiber bundle that was visually specified to be the afferent portion and that subserved the pressor response. This latter observation is in complete accord with the classical findings of Harper *et al.* (6).

In view of the anatomical isolation of the sympathetic fibers produced in the cervical regions of our dogs, the conditions were not present for the effectation of sympathetic influences in the blood pressure. Therefore, it is concluded that the pressor response to central vagosympathetic trunk stimulation in the dog is *via* the vagal afferent and not the cut end of the sympathetic efferent. This conclusion is supported by the recent publication (7) in which polygram sections depicted that electrical stimulation of the cephalic end of the dorsal and/or ventral abdominal vagus in the dog raised the femoral arterial pressure and that this response was abolished by surgical interruption of the vagal afferents at the cervical level. Application of the same stimulus to the proximal end of the cut cervical vagus produced the pressor response induced by central stimulation of the abdominal vagi prior to section. In sum, it is concluded that both the apneic and arterial pressor responses to central vagal stimulation are reflexes subserved by afferent limbs within the vagi and not the cut ends of the sympathetic element.

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Cryptopleurine, an Active Antiviral Alkaloid from *Boehmeria cylindrica* (L.) Sw. (Urticaceae)

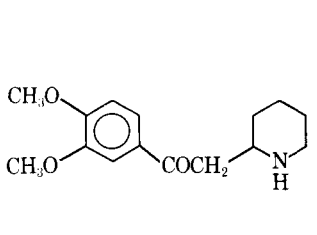
Keyphrases ☐ *Boehmeria cylindrica* (L.) Sw.—antiviral alkaloidal extract ☐ Cryptopleurine—isolation from *Boehmeria cylindrica*, antiviral activity ☐ Medicinal plants—isolation of cryptopleurine from *Boehmeria cylindrica*, antiviral activity ☐ Antiviral activity—cryptopleurine from *Boehmeria cylindrica*

Sir:

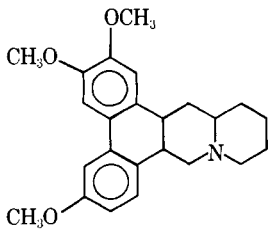
As a result of a screening effort to determine the biological effects of native plants, a defatted ethanol extract of *Boehmeria cylindrica* (L.) Sw.[1] was found to exert a marked inhibitory effect against several viruses in tissue culture experiments. Concurrently, similar extracts were shown to elicit a significant cytotoxic effect against Eagle's 9 KB carcinoma of the nasopharynx in cell culture (1). Subsequent phytochemical studies resulted in the isolation of three alkaloids, one of which was identified as 3,4-dimethoxy-ω-(2′-piperidyl)acetophenone (I). The others were cryptopleurine (II) and a base, obtained in very small amounts, which was suggested to be the secophenanthroquinolizidine (III). Only II was obtained in sufficient quantity for biological testing, and it was found to be highly active against the 9 KB carcinoma, exhibiting an ED_{50} of 7.8×10^{-4} and 2.6×10^{-5} mcg./ml. in replicate tests (1).

At this time we would like to report that II is also responsible for at least a part of the antiviral activity observed in tests with crude extracts of *B. cylindrica*.

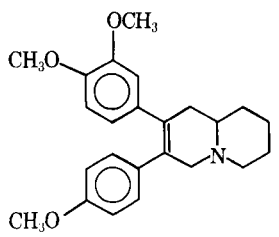
Cryptopleurine (4.5 mg.) was dissolved in 10.0 ml. of 1% (w/v) citric acid aqueous solution. Enough distilled water was added to an aliquot of 0.1 ml. of this alkaloid concentrate to make 100 ml. In this way, Solution A (4.5×10^{-3} mcg./ml.) was prepared for testing.



I



II



III

[1] Authentication of the plant material yielding II was previously reported (1).

African green monkey kidney cells were used in the studies[2]. The stock solution of cells was diluted so that 1.0 ml. of cell suspension contained from 80,000 to 100,000 cells. One milliliter of the prepared cell suspension was then seeded into 8-cm. long tissue culture tubes. The growth medium contained 10% of fetal bovine serum and 1% of SV-40 antiserum. Normally the cells grew to a full sheet in 8–10 days when they were used in the experiments.

Coxsackie B-5 and polio type I viruses were used as examples of RNA viruses, and herpesvirus *hominis* was used as an example of a DNA virus. Virus units of 10 and 100 were tested simultaneously. The cryptopleurine solution was tested for cytotoxic effects; by diluting it to 10^{-5}, the solution was devoid of appreciable cytotoxic effects and was suitable to carry out all experiments. Three types of inoculation of the African green monkey kidney cell medium were performed.

In the first experiment, 0.2 ml. of virus (10 and 100 units, respectively) and 0.8 ml. of Solution A diluted 10^{-5} were mixed prior to inoculation of the cells. In the second experiment, the cell suspension was covered with 1.0 ml. of Solution A diluted 10^{-5} for 2 hr. prior to inoculation with each test virus. In the third experiment, the cell suspension was covered with 1.0 ml. of Solution A diluted 10^{-5}, allowed to stand for 3 days, and then inoculated with the virus. The tubes were observed daily and the results were recorded. After 2–4 days, when a 3–4+ cytopathogenic effect of the virus control was observed, the experiment was terminated.

[2] A suspension of cells was obtained from the BBL Laboratories.

Solution A diluted 10^{-5} gave complete cytopathogenic effect protection against 10 units of herpesvirus *hominis* and partial protection against 100 units of the virus when the conditions of the third experiment were employed. No protection against the cytopathogenic effect was observed with any of the viruses under the conditions of the first two experiments nor with polio type I or coxsackie B-5 viruses under the conditions of the third experiment.

It appears that cryptopleurine is active only against herpesvirus *hominis* of the three viruses tested with exposure to the African green monkey kidney cell suspension for 3 days prior to exposure to the virus. The mechanism of the antiviral effect of cryptopleurine against herpesvirus *hominis* will be the subject of future investigations.

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BOOKS

REVIEWS

Laboratory Animals—An Annotated Bibliography of Informational Resources Covering Medicine-Science (Including Husbandry)-Technology. Edited by JULES S. CASS. Hafner Publishing Co., Inc., 866 Third Ave., New York, NY 10022, 1971. vi + 250 pp. 22 × 28.5 cm. Price $14.95.

Three separate compilations of articles related to laboratory animals make up this book. As a source book, the value and ease of use are diminished by the way the book is presented.

The original compilation is on pages 1–136; the first supplement starts on another page 1 and continues through page 148. The indexes to the first two compilations start on page 149 and go through page 250. The third compilation starts on a third page 1 and ends on page 42, with its own index on pages 43–60.

The first two compilations go through early 1963. The third compilation was apparently prepared in 1970; however, it includes a number of items listed in the previous compilations.

Each compilation is broken down into a number of areas of interest. Complete bibliographic information is included and an abstract summarizing the article is presented.

It appears to be a good reference source for articles on various aspects of the use of laboratory animals, at least through early 1963.

Staff Review ■

The Use of Cannabis. Report of a WHO Scientific Group. World Health Organization, Geneva, Switzerland, 1971. Available from American Public Health Association, Inc., 1015 18th St., N.W., Washington, DC 20036. 47 pp. 16 × 24 cm. Price $1.00.

The recent advances in cannabinoid chemistry are discussed and the historical trends in the use of Cannabis in various parts of the world are outlined. Current knowledge of the effects of Cannabis on man is reviewed and research needs are suggested.

Staff Review ■