TABLE I.—VOLATILE OIL, ASCARIDOLE, AND FRUIT YIELD IN CHENOPODIUM FOLLOWING TREATMENT WITH GIBBERELLIC ACID

Determination	Treatment with GA, p.p.m. 0	25	50	100	200
Volatile oil in fruits (v/w),[a] %	2.80	3.25	3.45	3.50	3.20
Ascaridole content of oil, %[b]	79.6	79.4	79.0	78.5	78.0
Dry fruit yield, Kg.[c]	1.50	1.75	2.00	1.45	1.25

[a] Mean from 10 determinations. [b] Average from three determinations. [c] Average yield from 20 plants occupying an area of 6 sq. meters.

DISCUSSION

From the foregoing observations it appears that, like *Anethum sp.* (4), the volatile oil of the chenopodium fruits also registers an increase with the application of GA. The fruit yield was also increased, which may be due to longer and more numerous flowering shoots. The increase in percentage of oil in the fruits suggests the possibility that GA may enhance the biosynthesis of essential oils in certain specific organs by either increasing the size and number of the cells which store the essential oil or prolonging the process of synthesis of oil. The ascaridole content in the oil fractions was not, however, altered appreciably by GA treatment but the increase in oil percentage in the chenopodium and anethum is in contrast with the observations on *Mentha spicata* (5) and *M. arvensis* (6) where the percentage of oil was decreased following GA treatment. The difference in behavior by the two categories of aromatic plants is of interest and needs further study.

The observations of Stevens, *et al.* (3), and Kaul and Kapoor (4) suggest that the increase may be due to prolonged biosynthesis of volatile oil and also the increased cell dimensions in the fruits containing the oil.

SUMMARY

1. The plants of *Chenopodium ambrosioides* Linne var. *anthelminticum* responded favorably to the treatment of GA.

2. It induced 25 and 33% increase in the volatile oil and the yield of the fruits, respectively.

3. GA did not appreciably alter the ascaridole content of the oil fractions from the various treatments.

4. The increased yield of fruits was due to increased number of axillary shoots which consequently bore more fruits.

5. The increased oil content in the treated plants may be due to increased cell size of fruits or prolonged biosynthesis of the essential oil.

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Communications

A Modified Method for Preparing Litmus Solution

Sir:

The procedure prescribed by N.F. XI for the preparation of litmus T.S. (1) is tedious and results in a product which is subject to deterioration due to microbial growth. These difficulties may be removed by (*a*) preparing the solution by means of a continuous extractor and (*b*) dehydrating the product by means of freeze-drying. The resulting powder is not subject to microbial growth and may be used to prepare the test solution as needed. The following extraction procedure was used: Place 25 Gm. of powdered litmus in a paper extraction thimble and insert the thimble into a Soxhlet extractor. Add sufficient alcohol to allow for free siphoning into the receiving flask, immerse the flask up to its neck in a steam bath, adjusting the flow of steam to maintain the extracting alcohol at a gentle boil, and continue the extraction for 3 hours. Raise the Soxhlet apparatus so the steam heats enough of the receiving flask to boil only the alcohol in the flask and permit the extraction to continue with the condensor-cooled alcohol for 30 minutes. Draw off all the alcohol in the system and discard. Reassemble the apparatus as it was originally, add sufficient water, arrange for heating with a Bunsen burner, and wash the litmus powder with reflux-cooled water for 3 hours. Discard the water. Remove the extraction thimble with the litmus powder from the extractor, place it in the emptied receiving flask,

and add 100 ml. of water. Attach a reflux water-cooled condensor to the flask and reflux for 1 hour over a Bunsen burner. Cool the solution and filter. Measure the volume of filtrate collected, and if necessary, add water to make 100 ml. This constitutes the litmus solution.

While the above procedure appears lengthy, it requires for the most part only cursory supervision during the various stages of extraction. The entire extraction, both with alcohol and with water, takes place in the same apparatus using only 75 ml. of alcohol.

The resulting solution can be used as such; but if the volume is more than is required for immediate use, it may be freeze-dried and kept until needed. It is feasible to freeze-dry 100 ml. of the solution in the VirTis freeze-dryer. No doubt other types of dryers are also suitable for this purpose.

The yield of dried residue from 100 ml. of extract is 500 ±2 mg. so that reconstitution can be effected by dissolving the powder in water in the proportion of 5 mg. per ml. Dried material so obtained has not been noted to undergo any change on storage for 12 months.

(1) "The National Formulary," 11th ed., J. B. Lippincott Co., Philadelphia, Pa., 1960, p. 486.

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The Absolute Configuration of (-)-N-[2-(Methylbenzylamino)-propyl]-propionanilide

Sir:

The importance of configurational factors on the activity of various synthetic analgesics has been illustrated by several investigators (1–6). These studies have shown that nearly all the activity resides in only one of the enantiomorphs. Beckett (7–10) has determined that the more active enantiomorphs of methadone-type and thiambutene-type analgesics possess the D-configuration. Though there are only a few classes of analgesics of known absolute configuration, a hypothesis has been proposed which attempts to explain this antipodal specificity on the basis of three point contact with a specific receptor in which only one antipode can fit properly (7). The above findings and speculations have prompted us to determine the absolute configuration of (-)-N-[2-(methylbenzylamino)propyl]-propionanilide (I) (11), a member of a new class of potent analgesics (12). We have related the absolute configuration of I to D-alanine by the following sequence