ORGANOLEPTIC BIOASSAYS.*,[1]

BY JAMES C. MUNCH, GEORGE E. BYERS AND HARRY J. PRATT.

"The tongue is more sensitive than the most delicate chemical reaction" (1). The literature on taste tests has been assembled (6).

The bioassay of capsicum has been proposed, studied in detail and adopted in U. S. P. X (2, 3, 4, 5, 7, 9, 10). As a result of investigations undertaken by one of us, a proposed modification of the U. S. P. X method has been published for consideration in the forthcoming XIth revision, (4, 5). This method is as follows:

"Shake 1 Gm. of coarsely powdered capsicum with 50 cc. of alcohol in a stoppered flask for 3 hours. Dilute 0.1 cc. of the clear, supernatant liquid with 100 cc. of 10% sucrose solution. Five cc. of this dilution swallowed during 5 seconds will produce the same degree of pungency in the throat as 5 cc. of 10% sucrose solution containing 16 mg. of piperine per L. In case 16 mg. of piperine per L. does not produce satisfactory pungency, the threshold concentration should be determined and corresponding alterations made in the standard for capsicum (0.1 cc. per 100 cc. or 20 mg. per L.)."

Further studies on this method have been made in a class of twenty-six students during the last year. It was found that very good agreements were obtained when proper recognition was given to the threshold of each investigator. The usual piperine threshold was 16 mg. per L. Two students showed consistently values of 15 mg. per L. Several others occasionally required concentrations of 17 or 18 mg. per L. However, by proper correction to a standard of 16 mg. consistent results were obtained in all cases. The suggested value of 20 mg. of capsicum per L. as a standard of pungency was met by five commercial samples tested at this time.

Four samples of commercial oleoresin were tested under the same conditions. A weighed amount of oleoresin was dissolved in 95 per cent alcohol to represent a dilution of 1 Gm. in 5 cc. and used for tasting, according to the method reported. The threshold of 3.5 mg. per L. previously recorded was met by all samples. Several of the samples previously reported (4), were re-tasted three years after the original assays, and no change in minimum effective concentration was observed. No change in the previous recommendation of 3.5 mg. of oleoresin of capsicum per L. appears necessary.

A few studies have been previously reported on the pungency of ginger and its oleoresin (2, 6, 8). The limit of pungency of Philippine Ginger ranged between 200 and 400 mg. per L. in ten persons who were not otherwise standardized (8). For the oleoresin, perceptible pungency was reported at a concentration of 3.3 to 5 mg. per L. (2).

In this investigation a series of commercial samples of crude ginger were obtained and made into fluidextracts. These were tested by dilution with 10 per cent sucrose solution, etc., following the method proposed for capsicum. The pungency was detectable on the tongue and cheeks as well as in the throat. These samples showed threshold values of 350 to 400 mg. of ginger per L.[2]

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[2] We wish to acknowledge our appreciation of the courtesy shown by Sharp and Dohme, Inc., of Philadelphia, in furnishing the material used in these investigations.

A few tests were made on the commercial oleoresins of ginger. Four samples were tested and found to produce a threshold pungency in concentrations of 5 mg. per L.

CONCLUSIONS.

1. A modified method for the bioassay of capsicum has been developed and proved successful in a series of assays by our students.

2. As standards of pungency it is recommended that 20 mg. of capsicum per L., and 3.5 mg. of oleoresin of capsicum per L. should produce the same degree of pungency as 16 mg. of piperine per L. (Threshold concentrations.)

3. This method is suitable for the bioassay of ginger and its oleoresin.

4. As standards of pungency threshold concentrations of 400 mg. of ginger and 5 mg. of oleoresin of ginger per L. are suggested.

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NOTES ON THE B. P. COLORIMETER TEST FOR ERGOT.*

BY F. A. UPSHER SMITH.

The color test for ergot devised by Maurice I. Smith (1) in 1930 soon found favor in Great Britain, so that it was adopted in the 1932 edition of the British Pharmacopœia.

Wokes (2) found that the test fails to distinguish between the inactive and active constituents of ergot. The four alkaloids, ergotoxine, ergotamine, ergotinine and ergotaminine, all gave the identical blue color with the Maurice Smith reagent when examined spectroscopically. In spite of the fact that this test does not measure solely the physiologically active substances in ergot, it was adopted for the following reason: The colorimeter test measures the total alkaloid with greater accuracy than the biological method measures the physiologically active alkaloid.

In the Report of the Sub-Committee on Ergot of the British Pharmacopœia Revision Committee (3), the conclusion was reached that the results by the bio-

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