are characteristic, the appearance of these constituents in mixtures, such as usually exists in fluidextracts, practically precludes their application quantitatively for the following reasons:

(*a*) The water-soluble amine fraction of the active constituents of ergot often exists in ergot preparations (especially fluidextracts) in amounts sufficient to cause a fall in blood pressure which may mask the pressure-raising effect of the specific alkaloids (Plate XIII), a condition comparable to that observed when a mixture of histamine and ergotamine is administered (Plate XI of Article IV (41)).

(*b*) The active ergot alkaloids produce a rise in blood pressure (Plate VIII, Article IV (41)). Repeated administration of identical doses of ergot alkaloids results in diminishing response, even when the doses are given at intervals of an hour.

(*c*) Injection of a preparation containing histamine results in a fall in blood pressure. If, after the pressure has returned to normal, an effective dose of pure ergot alkaloids is administered, a fall in pressure results instead of the rise usually produced. Thus, histamine, in amounts frequently existing in ergot, is capable of reversing the effect of the ergot alkaloids. This is illustrated in Plate XIV, which shows the rise in blood pressure produced by a fluidextract containing practically no active amines, and in Plate XV, which shows the effect produced by the same preparation after a dose of aqueous extract of ergot had been given. The same observations have been duplicated by administering pure histamine before ergotamine.

As histamine and other amines have been found to exist in varying proportions in most of the samples of crude ergot entering this country (41), this method cannot be depended upon to accurately determine either the amine or alkaloidal content of Fluidextracts of Ergot because of the antagonistic manifestation of their effects upon blood pressure.

The assay of crude ergot necessitates the application of a method to a freshly prepared fluidextract. Such a preparation has been found to contain practically all of the amines and alkaloids present in the parent drug. Pressor methods are therefore contra-indicated in this connection.

Although aging of fluidextracts causes a rapid loss of amine activity, thereby eliminating the greater part of the interference in several months, pressor methods cannot be regarded as being nearly as accurate or as applicable as the Isolated Rabbit Uterus Method or the Cock's Comb Method, because of the great variations observed in test animals and the diminishing pressor response produced by repeated dosage. The effects produced by the first dose are often all that may be considered as significant.

Pressor studies, however, are exceedingly valuable in determining the presence or absence of amines, or the qualitative nature of ergot preparations, because of the characteristic differences in reaction produced by the amines and the alkaloids.

(To be continued)

GLEDITSCHIA TRIACANTHOS LINNÉ.*—A PRELIMINARY REPORT ON THE CHEMISTRY OF THE FRUIT.

BY LOYD E. HARRIS.

This plant, commonly known as Honey Locust, probably first came into prominence in 1878, when Lautenbach[1] reported the presence of an alkaloid which he called gleditschine.

* Read by title, Scientific Section, A. PH. A., Rapid City meeting, 1929.

[1] *Phila. Med. Times*, 1878 ("U. S. Disp.," 20, page 1410).

Goodman[1] *et al.*, in 1887, claimed to have extracted an alkaloid, stenocarpine, which had local anesthetic properties. Later investigators[2] failed to find this alkaloid. Plugge and Rauwerda[3] reported that the plant did not contain cystisine.

The fruit was studied in 1893 by Heckel and Schlagdenhauffen.[4] The composition reported by them is as follows:

Wax	0.625
Glucose and saccharose	37.650
Gum, pectin and tannin	23.993
Albuminous matter	8.300
Lignin and cellulose	20.427
Salts	9.005

EXPERIMENTAL.

For the purpose of this investigation, the seed pods were collected from two small trees. A total of fifty pounds of this material was obtained, from which 1850 Gm. of seed were separated.

Gleditschia Triacanthos L. A tree grown on campus of University of Oklahoma.

The seed was ground in a drug mill and 1830 Gm. of it were extracted with alcohol. A total of 169.5 Gm. of material was obtained, which was dark brown in color. This represented 9.25 per cent of the weight of the seed.

In order to separate the fixed oil from the above extractive, the mass was shaken repeatedly with successive portions of petroleum ether; 58.5 Gm., or 3.19 per cent of the weight of seed, of a light brown oil were obtained.

The following constants of the oil were determined: S. V. 155.2, I. V. (Hanus) 93.9, n/D 23° 1.4685, Sp. gr. at 25°, 0.9336.

The oil was next saponified with alcoholic solution of potassium hydroxide. The alcohol was removed by

Gleditschia Triacanthos L. A limb of tree above, showing fruit.

[1] *Med. Record* ("U. S. Disp.," 20, page 1410).

[2] F. W. Thompson, *Med. Age;* T. G. Novy, *Ph. Rundsch.;* John Marshall, *Phila. Med. News* (U. S. Disp., 20, page 1410).

[3] *Arch. Pharm.*, 234, p. 685.

[4] *Répert. pharm.* ("Yearbook of Pharmacy," page 156).

evaporation and then an aqueous solution prepared. The fatty acids were liberated by the addition of dilute hydrochloric acid.

A portion of the fatty acids thus obtained were then separated, as nearly as possible, into the liquid and solid fractions, by use of the Gusserow-Varentrapp method as given by Lewkowitsch.[1]

The bromide addition products of the unsaturated acids were prepared.[2] The absence of Linolenic acids was indicated by the failure to obtain the insoluble brominated products. Only a petroleum ether-soluble paste-like material was formed, which indicated the presence of oleic acid. This was confirmed by making a bromine determination by the method of Stepinow.[3] A value of 34.98 per cent was obtained while the theoretical amount is 36.14 per cent.

The presence of palmitic and stearic acids was indicated by the melting point of the recrystallized acids. After repeated purifications, a melting point of 56.6° C. (unc.) was obtained. The neutralization equivalent was found to be 208.9, as compared to the neutralization equivalent[4] of 197.5 for stearic acid and of 219.1 for palmitic acid.

SEED PODS.

After the seed had been removed from the pods, the material left was allowed to dry. It was ground by use of a drug mill and then extracted with petroleum ether. Only a small amount of extractive was obtained.

The petroleum-ether extract was brownish green in color. On evaporation of the solvent a greenish material separated, and on complete evaporation, extracting once with petroleum ether, a soft wax-like substance was obtained on the filter paper. This material was tested for solubility with the following results:

Ether, insoluble with yellowish green color.
Alcohol (same as ether), soluble in hot.
Chloroform, soluble.
Ethyl acetate, insoluble with yellowish green color, insoluble in hot.
Methyl alcohol (same as alcohol).

After recrystallization from alcohol, the compound melted at 69.2° C.

Alcoholic Extract.—Nineteen hundred and twenty-eight grams of the above material were extracted with alcohol; 274 Gm. of a thick, dark brown extract were obtained.

Solubilities.—Slightly soluble in water, muddy-like mixture; slightly soluble in water and alcohol, excess settled out in fine particles; insoluble in carbon tetrachloride, acetone and ethyl acetate.

The writer hopes to be able to study further the extractives from the seed-pod material, in the near future.

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[1] Lewkowitsch, "Technology of Oils, Fats and Waxes," 6th ed., 1 (1921), 574.
[2] *Ibid.*, page 581.
[3] Kamm, "Qualitative Organic Analysis" (1923), 168.
[4] "Lewkowitsch," 6th ed., 1, 524.