

Process "A" (crushed bark)	3.21 Gm. in 10 cc.
Process "C" (coarse ground bark)	3.22 Gm. in 10 cc.

Hence from the standpoint of extraction efficiency the two methods are equally good, providing percolation is carried to exhaustion of the drug. Percolate from "A," however, was lighter in color even though its extractive content was the same. Therefore, it appears that the magnesium oxide affects the very coarse crushed drug differently so far as color is concerned than the less coarse ground drug. More rapid extraction was apparent in "C" as indicated by a higher total solid content in the first percolate taken from the drug.

During percolation, difficulty was experienced with clogging of percolators in two of four trials with the method of boiling the crushed drug (Method A). This method appears to be suitable for large scale operation but for smaller scale production we suggest the moistening of 1000 Gm. of coarsely ground drug and the required magnesium oxide with 1000 cc. of boiling water and allowing it to stand in a covered vessel for 24 hours before packing in a percolator.

Our experiments and observations lead us to suggest the following formula as one worthy of consideration in further experiments:

Cascara Sagrada, in coarse powder	1000.0 Gm.
Fluidextract of Licorice	125.0 cc.
Magnesium Oxide	90.0 Gm.
Gluside	1.0 Gm.
Glycerin	250.0 cc.
Alcohol	100.0 cc.
Oil of Anise	1.0 cc.
Oil of Coriander	0.1 cc.
Fluidextract of Angelica	2.0 cc.
Water to make	1000.0 cc.

Mix the cascara with the magnesium oxide and moisten in a dish with 1000 cc. of boiling water. Cover the dish and allow to stand for 24 hours. Transfer to a percolator and percolate with boiling water until the drug is exhausted; evaporate the percolate as received to 500 cc. When cold, add the glycerin and the alcohol in which the gluside and flavoring ingredients have been previously dissolved. Finally make the preparation up to 1000 cc. with water.

PHARMACEUTICAL & CHEMICAL LABORATORIES,
E. R. SQUIBB & SONS,
BROOKLYN, N. Y.

THE THERAPEUTIC ACTION OF PYRULARIA OLEIFERA.*

BY JOHN WIECZORKOWSKI AND L. K. DARBAKER.

Pyrrularia oleifera A. Gray has been given a number of common names: Crazy nut—it is said to be given to demented persons to make them sane; mother-in-law nut—said to be one way in which to eliminate mothers-in-law; and oil nut—probably on account of the large oil content of the fruit which contains 61.94% of an acrid fixed oil.

Pyrrularia oleifera is a member of the *Santalaceæ* and its habitat is in rich mountain woodlands in the Alleghenies, south of the Mason-Dixon line. It

* Scientific Section, A. P. H. A., Toronto meeting, 1932.

grows as a shrub, ranging in height from one to four meters. When young the whole plant is downy but when older, glabrous; probably this accounts for the older species name "pubera." The leaves are oblong, acute, more or less pointed at both ends, soft, very much veined and minutely pellucid punctate. The flowers occur in June and are greenish yellow, small in size and occur in terminal racemes. The male flower contains four to five short stamens, while the fertile flowers contain a pear-shaped ovary.

The fruit is yellowish in color, fleshy, drupe-like, pear-shaped, one-seeded and averages 2.5 cm. in length. The embryo is small and very oily.

Specimens used in our investigations were collected at Ohio Pyle, Pennsylvania, the only recorded stand north of the Mason-Dixon line.

Fluidextracts were made from both the whole fruit and the separated kernels without previous drying.

The investigations resulted as follows:

Fluidextract from the whole fruit.

Administration: Hypodermic, intraperitoneal. *Dose:* 0.003 cc. per Gm. weight of guinea pig. *Results:* General convulsions within three minutes, followed by general paralysis and usually complete recovery in 24 hours.

Administration—*Per os:* *Dose:* 0.003 cc. per Gm. weight of guinea pig. *Results:* Convulsions and death within an average of 18 minutes.

Fluidextract from the kernel.

Administration—*Per os:* *Dose:* 0.003 cc. per Gm. weight of guinea pig. *Results:* Convulsions and death within 60 minutes.

From this incomplete investigation it would seem that the fruits of *Pyralaria oleifera* are very poisonous. It is hoped that further investigation may be carried out. The toxic principles should be determined as well as the physiological action of the oil.

PIONEERING IN PLANT CHEMISTRY.*

BY ARNO VIEHOEVER.

Our present knowledge of plants and their uses has come to us down through the ages. Man, obviously by the trial and error method, early discovered the food, technical and medicinal value of plants and plant products. There is some evidence that only in modern times has man actually searched for the active and valuable ingredients.

Simple substances, as starch and cane sugar, were well known in antiquity. With the application of the general alchemistic methods employed in the middle ages: distillation, sublimation, melting, calcination, only the most resistant plant substances could be obtained, as benzoic acid, sublimed from gum benzoin. *Paracelsus*, the great independent fighter for medical science, endeavored to extract the active ingredients from medicinal plants, but the methods were still crude and the results rather unsatisfactory. Nevertheless, in 1675, *Lemery* gives us a grouping of chemical substances into mineral, animal, and vegetable products, and enumerates

* Section on Historical Pharmacy, A. PH. A., Toronto meeting, 1932. Illustrated by lantern slides.