

SCIENTIFIC SECTION, AMERICAN PHARMACEUTICAL ASSOCIATION

ANALYSIS OF THE SEEDS OF GYMNOCLADUS CANADENSIS.*

(Kentucky Coffee Tree.)

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The Kentucky Coffee Tree grows in the section from Canada south and west to Nebraska and Kansas. It is a large tree, growing 50 to 60 feet high in the north and considerable higher in the south. In the north it is sometimes called Chicot or Stump tree. It has a rough bark, large bipinnate leaves, 2-3 feet long; 7 to 15 leaflets, ovate or acute; glabrous or pubescent on veins beneath; racemes, many flowered; seeds, hard, $\frac{1}{2}$ inch across, imbedded in a sweetish, acrid and somewhat mucilaginous pulp.

A few cases of poisoning have been reported from the eating of some part of the fruit of the Kentucky Coffee Tree. This matter was first brought to our attention in a practical way, during the past year, when a few of the seeds were sent to the laboratory from Pleasanton, Kansas, for investigation. The eating of some of these seeds was reported to have caused the death of a child in that town. It has been impossible to get the history of the case from the two attending physicians and, too, it could not be definitely learned whether the poisoning was caused from eating the seeds or the fruit-pulp, which the literature on *Gymnocladus* seems to indicate as being the most common source of poisoning.

An analysis of the seeds gave results as follows:

Ash.....	4.25%
Moisture.....	8.76%
Material by Acid Conversion, calculated as starch.....	16.00%
Sugar, by direct polarization.....	18.40%
Reducing sugar.....	None
Proteid (N \times 6.25).....	30.43%
Fixed oil.....	20.12%
Wax and resinous matter.....	2.10%

An examination of the oil showed constants as follows:

Saponification Value.....	195.09
Iodine Number.....	135.21
Refractive Index at 20° C.....	1.4750
Color, bright yellow; taste, bland.	

The constants of this fixed oil show a high saponification value and a comparatively low iodine number and run nearly parallel with those for Devil's Claw and Walnut oils.

Qualitative examination of the seeds indicate the presence of saponin and a toxalbumin, similar, if not identical, with that of ricin, the poisonous principle found in the castor bean.

It is a well-known fact that the roasted seeds of *Gymnocladus* are often eaten by children with impunity and no cases of poisoning have been reported, except where the raw seeds were eaten; the poisonous principle, evidently, having been destroyed by heating. This we know to be true of both saponins and toxalbumins.

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