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ISOLATION AND IDENTIFICATION OF SUCROSE FROM SENEGA.*¹

BY RALPH BIENFANG.

As early as 1836, Price made mention of a sugar-like substance which he noticed in an extract of senega. In 1894 Guillaume-Gentil reported that he obtained a carbohydrate, polygalite, using a method projected by Chodat in obtaining it from the root of *Polygala amara*. Characters for this substance given by Guillaume-Gentil were, melting point 138°, easily soluble in water, hot alcohol and practically insoluble in ether. Fehling's solution had no immediate effect upon an aqueous solution of it, but after 24 hours, a red sediment was noticed in the bottom of the tube. In 1896, Schroeder in this country reported the presence of 5.82% of sucrose, and in 1896 Kain in Germany likewise reported sucrose as a constituent of senega.

Seven Kg. of senega in a No. 20 powder were first extracted with petroleum ether and then with alcohol. The alcoholic extracts were turbid, and so were filtered before being concentrated. The concentrated alcoholic extract was put into glass containers and allowed to stand at room temperature for two weeks. At the end of this time an appreciable crystalline deposit had formed on the sides and bottoms of the containers. This was broken up, filtered out, redissolved in diluted alcohol, and shaken with animal charcoal until a colorless syrup was obtained. In this syrup, upon standing, crystalline blocks were formed. These crystals obtained were sweet and so some of the material was tested with the Molisch reagent for carbohydrates. The result was positive. With Fehling's solution a negative result was obtained. The crystals were soluble in water and hot alcohol, but insoluble in cold alcohol and ether. The melting point was found to be 186-187° C.; specific gravity 1.5734 at 20° C. A specific rotation of +67.5° became -20.4° after boiling with HCl. An acetate was attempted with the production of a bitter syrup insoluble in water but soluble in alcohol. Glucosazone was formed when it was heated for 46 minutes with phenylhydrazine hydrochloride and sodium acetate.

* Scientific Section, A. Ph. A., Madison meeting, 1933.

¹ From a thesis submitted in partial fulfillment of the requirements for the Ph.D. degree, University of Wisconsin, 1929.

Since the above characters of the isolated material agree with those recorded for sucrose, the material was concluded to be sucrose.

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PSYLLIUM SEED II. SO-CALLED "ADEX PSYLLIUM."*

BY HEBER W. YOUNGKEN.

In a previous article (see *JOUR. A. PH. A.*, 21 (1932), 1265-1271), some studies were reported that had been made by the author on commercial Psyllium seeds. Since that time he has examined many commercial samples of Psyllium including the article known as "Adex Psyllium."

Psyllium seed has become a broad commercial synonym for a variety of seeds belonging to the genus *Plantago*, many reputable dealers specifying on their labels the particular commercial variety of Psyllium by limiting adjectives preceding the noun, such as French-, Blonde-, White-, Brown-, Black-, German-, Spanish-, and some have supplemented the common commercial name with the scientific or botanical name of the plant claimed to yield the product.

During the course of the author's earlier observations on the commercial Psylliums, he came upon a package labeled "Adex Psyllium Seed." Upon examination of its contents it proved to consist of the nutlets or fruits of a Labiate, and this product was being offered as a kind of Psyllium seed. Later, he received samples of this very article by two dealers who sought his opinion on the quality of "this form of Psyllium seed."

Of course it was not a Psyllium seed at all, not even a seed, but a fruit of the Labiate which Clevenger had previously detected and reported to be yielded by *Lallemantia royleana* (1).

The plant was named after the botanist, Royle, who collected it in the province of Kanaor in India.

The author planted several lots of these small fruits in seed boxes and pots and reared several plants therefrom which he compared with the description of *Lallemantia Royleana* Benth. in De Candolle's *Prodromus* (2) and found the characteristics of them to tally with the statements on this species in that authoritative work.

DESCRIPTION OF LALLEMANTIA ROYLEANA, BENTHAM.

An annual herb native to India and Persia attaining a height of from 5 to 18 inches. Stem quadrangular, simple to branched, glabrate at base, softly villose beyond and pubescent at the apex. Foliage leaves opposite, = cordate below, petiolate, green, base of the lower cuneate, of the upper narrowed into petiole; margin of lower leaves crenate; inflorescence a long, interrupted spike-like raceme of verticillasters; bracts small petiolate; flowers small, tubular-bilabiate the calyx green, pubescent, 5-toothed and striate; the corolla pale purple to blue with a slender tube and a 2-lipped limb; fruits 4 dull black, oblong-ovate nutlets; seed exalbuminous.

* Scientific Section, Madison meeting, August 1933.