

EXAMINATION OF THE ROOT OF AN *IPOMOEA* FROM RHODESIA

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PLATE XXVII

I am indebted for the specimen of the root of *Ipomoea* to Dr. W. Yorke, who brought it from Rhodesia. Dr. Yorke says of the root: 'It is the native remedy for a disease known as Chilatera, which has quite erroneously been confounded with Sleeping Sickness. A native doctor who visited our Sleeping Sickness Camp in the Luangwa Valley stated that several of the patients were suffering from Chilatera, and that he could cure them by administering this drug. On obtaining our consent he made a decoction of the root and administered it to the patients in question. Within an hour they all exhibited marked signs of gastro-intestinal irritation with acute vomiting and diarrhoea. I think that, as the drug has such a powerful cathartic and emetic action, it would be of interest to attempt to ascertain the active principle.'

The material consisted of a rough tuberous root (Pl. XXVII) weighing 260 grammes, 20 cm. long and 24 cm. in diameter, having the external characters of that of *Ipomoea horsfalliae* described by Power and Rogerson.*

MACROSCOPIC AND MICROSCOPIC CHARACTERS OF ROOT

The root was found to consist of a hard outer portion, of an ashy-grey colour, with warts upon it and exhibiting dark spots of exuded resin. The inner portion, evidently decomposed, showed a black pulverulent mass which was interspersed with greyish vessels.

* Wellcome Laboratories Report No. 171, reprinted from the American Journal of Pharmacy, August, 1910.

Upon examining the latter material under the microscope the vessels were seen to have thickened walls, and starch grains, simple and compound, were present in large quantity. The outer portion consisted of some ten layers of yellowish-brown cork cells, and resin-secreting cells were seen in the cortex and the bast, whilst starch grains were numerous in the parenchyma.

PRELIMINARY EXAMINATION

Upon digesting a small quantity of the inner portion of the root with water, in a water bath, for two hours an extract was obtained which was alkaline to litmus, gave no reaction for tannin or alkaloids, but reduced Fehling's solution, and gave a slight cloud with solution of acetate of lead, and a persistent froth upon shaking. An extract of the outer portion, prepared in a similar way, was acid to litmus, reduced Fehling's solution, and frothed upon shaking.

ESTIMATION OF MOISTURE

The moisture, estimated upon 14.29 grammes of whole root, was found to be 61.47 per cent.

EXAMINATION FOR VOLATILE OR FIXED OIL

As the root had a slightly aromatic odour it might contain a volatile oil; with a view of ascertaining this, 4.2 grammes of the finely-powered root was mixed with twice its weight of fine sand and exhausted in a Soxhlet apparatus and reflux condenser with petroleum spirit. Upon evaporation of the latter a syrupy liquid was obtained corresponding to 2.59 per cent. of the material taken. This quantity was too small to make much of, and upon passing steam over it in a closed vessel no aromatic odour was obtained.

EXAMINATION FOR PRESENCE OF RESIN

60 grammes of the dried root was cut up, and separated into outer and inner portions. These were present in the proportion of three of inner to one of outer. Each was powdered, mixed with twice its weight of fine sand and exhausted with hot alcohol in a Soxhlet apparatus. Most of the alcohol was recovered by distillation, and the remainder evaporated until the extract ceased

to lose weight. In the case of the outer portion the result was a soft extract corresponding to 6.95 per cent. of the material taken, and having an odour of extract of gentian. This extract was digested with water on a water bath, cooled and filtered; the filtrate was slightly acid to litmus and gave no reaction for tannin or alkaloids, nor did it reduce Fehling's solution. A dark green resin was left upon the filter paper corresponding to 0.85 per cent. of the dried outer portion of the root taken.

The inner portion of the root treated in a similar way yielded 8.19 per cent. of soft extract and 3.70 per cent. of resin.

I am much indebted to Messrs. G. B. Westmacott and Son, who very kindly procured from Jamaica for me a fresh root of *Ipomoea horsfalliae* for purposes of comparison.

Dr. Yorke is endeavouring to procure leaves and flowers of the plant which yields the root I have described above; until these arrive the identity of the drug must remain uncertain.

EXPLANATION OF PLATE XXVII

Tuberous root of *Ipomoea horsfalliae*—a native remedy for the disease known as Chilatera, in Rhodesia.