Overzicht van en bijdrage tot de kennis van medicinale curcuma (temoe lawak)
Gunster, Pieter Engelbertus

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SUMMARY.

In native medicine in Java „temu lawak”, the Malay name of one or more Curcuma species, is very popular as a remedy for liver and gall diseases; further it is used by women in childbirth and for disorder of the stomach and the intestinal organs.

With the purpose to study the culture and to examine the botanical, chemical and pharmacological properties of this plant and also to bring more uniformity into the official Latin nomenclature the Government of the Netherlands East Indies decided in 1937 to lay out a cultivation on a surface of 1 hectare on the „Gouvernements Gutta-percha Onderneming”, at Tjipetir (35 km S.S.West of Buitenzorg).

Moreover young plants were bought from the natives in the neighbourhood of this plantation.

Through the intermediary of Prof. Dr. L. P. le Cosquino de Bussy, Director of the „Handelmuseum v.h. Koloniaal Instituut”, at Amsterdam, the material was sent for research to Prof. Dr. D. van Os, professor in Pharmacy and Toxicology at the University of Groningen; under his guidance this work was carried out. I was charged with the botanical, chemical and pharmacological investigation.

With regard to the botanical part of this work it may be said that the „temu lawak” plants were not uniform. Determination led to the official names: Curcuma xanthorrhiza Roxb., Curc. colorata Val. and Curcuma domestica Val.

These three species have been described; the anatomical properties and the localisation of the essential oil were carefully examined.

The percentage of essential oil cannot be a criterion for one of these three species as this varies with the climate and other external circumstances (as with most members of the Zingiberaceae). The essential oil of Curc. xanthorrhiza contains: d-α-phellandrene, d-camphor, d-borneol and cineol, together making 10 % of the oil.
A third part of the oil consists of zingiberene; so the Curc. oil is able to form a source for the supply of this product; especially as the fractionation (once or twice) of this oil furnishes this product in fairly pure form.

In the higher boiling fractions there could be demonstrated the presence of (in conformity with Prof. Rupe) atlanton, turmerone and ar-turmerone.

Further have been investigated:
The percentage of these ketones (with the aid of hydroxylamine);
The splitting up of these ketones with potassiumhydroxide;
The action of maleic-acid-anhydride on turmerone and its splitting ketone; it is not possible to use this reaction to separate ar-turmerone in pure form.

It is possible to esterify the above mentioned ketones with boric acid under definite circumstances, probably in enol-form.

Turmerone gives with mal.ac.anh. a brown coloured, resinous derivative.

The carboxylgroups react with sodium-hydroxide for the greater part but by boiling during a longer time.

The maleic acid derivative of the splitting ketone of turmerone is white and has a melting point of 126—127°.

Zingiberene reacts with mal.ac.anh. in a proportion 1 : 2; this product is also white and melts at 170°.

Turmerone is a mixture of isomeres; the structure-formula with a conjugated double bond is dominating; the other formula possesses two opposite double bonds in the nucleus.

As to the antiseptic properties of the ess. oil it can be said that the killing power in respect of Bact. pyog. aureus is 0,44 (in comparison with phenol). One part in 250 hinders the development of Bact. p. aur.; also it readily prevents the fermentation activity of Bact. coli.

The essential oil has:
Specific action on the biliary secretions, leading to an increase;
Laxative action, in small quantities; in larger doses it di-m
nishes peristaltic activity of the intestines (carminative action).
The ess. oil is capable of causing contractions of the uterus.
Further were investigated the working on the heart of Rana esculenta: in small doses it excites the working of this organ; in large quantities it is toxic (conc. 1 : 100).
A dose of 50 mg/1 kg body-weight, diminishes blood pressure.
It may be added that the resin and the colouring matter, curcumine, from Curc. xanthorrhiza, do not show any physiological activity.
Theoretically the essential oil is able to corrode gall-stones.