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Botanical Medicine Monographs and Sundry

LUKRABO OR TA-FUNG-TSZE.

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In the interesting papers on "Chinese Materia Medica," by the late Daniel Haubury, published in the *Pharmaceutical Journal* ([2], vol. iii., 1862), a seed is described and illustrated under the name of Ta-fung-tsze, which he conjectured to be allied to *Chaulmugra*. This seed is largely used in China in skin diseases and leprosy, and appears to have been employed in that country for at least three hundred years, since the tree affording the seed is figured in the old Chinese herbal, "Puntsaou," published A.D. 1596. The tree, however, has up to the present time been unknown to botanists.

The *Ta-fung-tsze* is still an article of considerable commerce, figuring in the Consular Blue Books under Chinese imports by the name of *Lukrabo*. As much as 48 piculs (6,400 lbs.) of the seed were exported from Bangkok to China in 1871. It is also exported thither from Saigon in Cochin China. The seed in question is about half the length of *Chaulmugra* seed, but of equal diameter. The shell is thicker and harder, and at one end is marked with a few radiating slightly raised ridges, whereas that of *Chaulmugra* is quite smooth.

Dr. Porter Smith, in his "Chinese Materia Medica." (1871), p. 140, describes these seeds under the name of *Lucrubau*, and he also considers them as a variety of *Chaulmugra*. He states that they are described in Chinese books as being good for leprosy, lepra, itch, pityriasis, psoriasis, syphilis, lipoma, vermes, and chaps upon the back of the hands, and that calomel and the seeds of *Robinia amara* are used with the *Lucrubau*, both externally and internally, in the treatment of leprosy. In the northern province of Hupeh the seeds are in great repute as a remedy for parasitic pediculi and the itch insect. In Soubeiran's "Matiere Medicale chez]es Chinois" (p. 221), the seeds are erroneously referred to *Gynocardia odorata*.

In the Kew Report (1878, p. 33) the seeds, under the name of *Dai-phong-tu*, are said to be used in Saigon as a vermifuge after the extraction of the oil. It is added that M. Pierre has successfully raised some seeds of the plant, and refers it to the genus *Hydnocarpus*. The species, however, is not mentioned in the Kew Report and no further information has appeared in it upon this point in subsequent years. Having had a specimen of the *Lukrabo* seed in the museum of the Pharmaceutical Society for some years—without a specific name—I recently wrote to M. Pierre for information as to the species yielding the seed. In response he has kindly forwarded for the herbarium of this Society a specimen of the plant with flowers and seeds, and the following interesting statement: "It is a new species which I have named *Hydnocarpus anthelminthica*, Pierre. It is very nearly allied to *H. alpina*, Wight, p. 940, but its leaves are more linear-oblong. The scales opposite to the petals are less long and more ciliated, the stigma is furrowed in its whole extent, and is only toothed towards the extremity of its reflexed margin, while in *H. alpina* it is furnished with large lobes. The male flower contains a rudimentary ovary; in the female flower this is pyramidal. The seeds are used as a vermifuge by the Annamites. The names given in Annam to the plant are *Dai-phong-tu* and *Thaoc-phu-tu*. The specimen sent was gathered in the province of Bien Hoa in Southern Cochin China." A figure of the tree will, I presume, be given in the magnificent "Forest Flora of Cochin China," now being published by M. L. Pierre under the auspices of the French Government.

The botanical source of this important eastern drug is thus at last satisfactorily cleared up.—*Phar. Jour. and Trans.*, July 16, 1884, p. 41.

RESEARCHES ON THE DISEASES OE ANIMALS.

BY PASTEUR AND OTHERS.

Pasteur's results may be summarized as follows: It is proved by inoculation experiments that both quiet and raving madness originate from the same poison. The symptoms of madness are extremely variable, and depend apparently on the part of the nervous system attacked by the poison. The infectious matter is in the form of microbes in the saliva of mad animals; inoculation with it causes death in three ways, either by microbating the saliva, or by the excessive production of pus, or by the development of madness. The marrow, brain, and spinal cord are always, virulent in all animals dying of madness, the virulence

increasing until putrefaction sets in. In one case a brain was sustained at a temperature of 12° for three weeks by this action. To produce madness quickly and surely, after trepanning, inoculate in the skin on the surface of the brain ; the disease will make its appearance in 6, 8, or 10 days. The malady produced by injection into the blood system exhibits symptoms which differ greatly from those of raving madness caused by a bite or by inoculation after trepanning, and hence many cases of the quiet form may escape observation. In those which may be termed moderate, pronounced paralysis ensues, whilst raving and howling are not observed. When the poison is injected into the blood, the spinal cord seems to be the first point attacked. Injection of saliva or blood from a mad subject into the veins does not protect a dog from a subsequent outbreak of madness, or from death after a second inoculation of mad matter, either by trepanning or injection in a vein. Cases of spontaneous recovery have been observed when early symptoms only were developed, but never after the symptoms became violent. In some cases after they had disappeared they returned after two months, whereupon death followed.

As a great many sheep are lost after protective inoculation for sheep-pock, Peuch has investigated the subject, and from the results of his experiments draws the conclusion that this danger may be greatly reduced by using small quantities of lymph diluted 60 to 120 times.

Thiernesse and Degive have made experiments on protective inoculation for lung epidemics. Their results show that 2 grams of lung epidemic poison may be injected into the veins without danger, provided it does not touch the cell-tissue. Immunity to the same extent results from this injection as from the tail inoculation recommended by Willems. Immunity in this case is sometimes perfect, and does not cause changes which occur when the disease is taken in the natural way.—*Bid. Centr.*, 1883, pp. 674-677; *Jour. Chem. Soc.*, May, 1884, p. 623.

ACCELERATION OF THE OXIDATION OF DRYING OILS.

BY A. LIVACHE.

When a drying oil, previously treated with litharge or finely divided metallic lead is agitated with a solution of zinc sulphate, all the lead is precipitated from the oil, but the latter now holds zinc in solution. By

using manganese sulphate, copper sulphate, etc., in this way, every trace of lead is removed from the oil, but the lead is replaced by manganese, copper, etc. If an oil charged with lead will dry in 24 hours when spread out in a thin layer on glass, it will dry completely in five or six hours if charged with manganese, in 30 to 36 hours with copper, zinc or cobalt, and in more than 48 hours with nickel, iron, chromium, etc.

It is more convenient to use the solid finely powdered salt in place of a solution, since the latter forms an emulsion with the oil. In fact, treatment with metallic lead and a solid sulphate may take place simultaneously, but in this case the oil will contain some lead in addition to the other metal.

Although solidification of a drying oil charged with manganese takes place in five or six hours when spread out in thin layers, the solidification of thick layers requires a long time, even though the protecting pellicle which forms on the surface is continually removed. Oxidation is more rapid at a higher temperature, but with thick layers a long time is required for complete solidification, even under these conditions.

A temperature of 50-60° accelerates the oxidation of drying oil, partly because the oil becomes more fluid, and partly because the oxygen is more active at a higher temperature.

When a manganiferous oil is dissolved in an equal volume of benzene, aud agitated with air in a closed vessel, rapid absorption of oxygen takes place, especially at a temperature of 40-50°. If the air is continually renewed, so as to furnish the oxygen required for the maximum oxidation of the oil, the liquid becomes thick, and on distilling and separating the solvent a liquid is obtained which solidifies on cooling to a very dry and perfectly elastic solid. It is evident that by limiting the oxidation a series of products of varying viscosity, can be obtained intermediate between the original oil and the solid formed by maximum oxidation. The last product is characterized by its remarkable elasticity, and its absolute insolubility in water, alcohol, and ether. It is almost instantly saponified by potash in the cold, and on subsequent separation of the fatty acids it is found that the solid fatty acids have undergone no alteration, whilst the liquid fatty acid has almost completely disappeared, and has been converted into viscous products, characterized by their solubility in water and by the various salts which

they form.—*Comp. Rend.*, 97, 1311-1314; *Jour. Chem. Soc.*, April, 1884, p. 532.

VEGETABLES USED AS FOOD IN JAPAN.

BY O. KELLNER.

Vegetables form a large part of the people's food in Japan; the varieties in use are many, and the methods of cooking numerous; some are preserved by simple air-drying; others are made into jams, pickled with sugar or acidified. The soja bean is the foundation of an almost universally used sauce, *Schoyu*; of a vegetable cheese, *Miso*; and of a highly albuminous jelly, *Tofu*; a large number of the plants are indigenous, other peculiar to warm climates, and few have hitherto been submitted to chemical examination. Bice is the largest article of consumption, and of it there are many varieties, allot which are grouped in two divisions : one, the mountain rice grown on dry ground; the other marsh rice, cultivated in irrigated fields, both being botanically the same. Of the marsh rice there are also two principal divisions—ordinary and glutinous rice; the following analyses of dry matter in the three kinds are given :—

	Ordinary.	Glutinous.	Mountain.
Proteïn matter	7·00	5·87	8·75
Fat	2·29	3·44	2·58
Cellulose	4·58	5·19	1·98
Non-nitrogenous extract	84·76	83·89	85·53
Ash	1·37	1·61	1·18

The figures for fat are larger than in other analyses of rice, but the difference is accounted for by the author's samples being undressed grain, whereas the samples examined by other investigators have been of the dressed and well cleaned commercial article. *Panicum italicum*, a species of millet, is, after rice, the principal food of the poorer classes. *Sorghum saccharatum*, is an introduction from America. *Phaseolus radiatus* is a bean largely cultivated and highly esteemed ; it differs but little from the European variety, *Phaseolus vulgaris*.

Canavalia incurva, another sort of bean, is a climber not much cultivated; the pods are about 20 cm. long, bearing 6-8 rose-colored seeds, weighing on an average 2.5 grams each; they have, when ripe, a

disagreeble smell, and are generally eaten unripe. *Solanum Melongena*, or egg plant, is largely cultivated, and many varieties of it exist; it is reared from seed, and bears fruit for a long time. The specimen of fruit examined weighed 64 grams; its value as food about equals that of the pumpkin or gourd. Young shoots of the *Bambusa puerula*, and three other varieties of bamboo, are very much in favor. As soon as they appear above the earth in spring, they are dug out and eaten, dressed as asparagus. Different kinds of the sweet potato (*Batatus edulis*) are largely cultivated, and are great favorites; their long succulent stems interlace and cover the soil, keeping it moist. Their deficiency in nitrogen and the small amount of ash compared with other root vegetables, is remarkable.

Dioscorea japonica is of limited cultivation, and used by the wealthier classes. *Arctium Lappa*, the seeds (root?) of one variety, *Ummeda Gobo*, reach an extraordinary size, a length of 1 meter, and circumference of about 30 cm. *Colocasia antiquorum*, the sweet Japanese potato, is extensively cultivated; like the common potato, it is grown from the sliced tubers. *Conophollus Konjak* is a somewhat similar plant; the root is rich in starch ; it is used in the preparation of a gelatinous sort of food called konyaku, peeled, dried, and rubbed to powder; milk of lime, or the soluble salts from wood-ash is added to it, and stirred up to a stiff paste ; it dries to a clammy mass, *Brassica rapa rapifera*, a turnip, is a favorite food. *Raphanus sativus* is a kind of radish which grows to an enormous size, specimens weighing $2^{1}/_{2}$-3 kilos are not uncommon, and one sort is much esteemed for its sweet taste; the radish is one of the most esteemed vegetable foods of Japan.—*Landw. Versuchs.-Stat.*, 30, 42—51; *Jour. Chem. Soc.*, June, 1884, p. 674.