

Hydnocarpus Wightiana.

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IT is with pleasure that I respond to the Editor's friendly request for a short article on the hydnocarpus tree and our methods of preparing the oil, which is now recognised as being indispensable in the treatment of leprosy, and is, for that purpose, being called for from even the most remote corners of the world. That the efficacy of the oil as a blood purifier was known to the *Ayurvedic School of Medicine many centuries ago cannot be gainsaid, as it appears as the principal ingredient in the various prescriptions handed down by the Rishis of old for the treatment of skin diseases in general, and of leprosy in particular. Although hydnocarpus oil was not a rare thing in Malabar, medical men of the past had always complained that the hydnocarpus oil that they wanted for their profession could nowhere be found. It was our investigation into the seemingly mysterious cause of this clamour that brought us to a realm of knowledge concerning the vagaries of the tree and the requirements of the fastidious Ayurvedic physician for whom alone we were then catering. This knowledge has been added to in recent years as a result of personal conversations and correspondence with some of the best known specialists in the West. We trust that this short note, based on our experience, will be of interest to readers of **LEPROSY REVIEW**.

The hydnocarpus wightiana is a fine, tall, and bushy tree—almost a spontaneous growth—growing along the western boundary of India from South Concan to Cape Comorin. It is met with more profusely on the laterite soil of the interior, and only rather sparsely in the loose, sandy coastal area. The twigs appear brownish and pubescent (rarely glabrate). Leaves average 8-in. by 3-in., and are alternate, shortly petiolate, elliptic to long lanceolate in shape, with acuminate apex. Flowers are mostly solitary, pale yellow with white corolla, and slightly fragrant. The fruit, globose in shape, grows to the size of an apple and has a hard shell with a rough, woolly surface.

* One of the Indian indigenous systems of medicine.

Seeds are numerous in a fruit, obtusely angular in formation and lie embedded in pulp. When the fruits are tender, the pulp has a cream colour and appears hard to the touch, but in ripe fruits it assumes a semiliquid form with a yellowish tinge. The only useful part of the tree is its oil. In its crude form, the oil used to be burned in taper lamps, which are now replaced by cheaper kerosene ones. But for the medicinal value of the oil, the tree would have been hunted down to extinction long ago by dealers in firewood.

Flowers begin to appear during July and August, but the fruits are not seasoned and ripe till several months afterwards. The season for gathering the fruits varies slightly in different places, but as a rule it may be said that the harvest begins by the end of March and lasts till about the middle of June.

The whole quantity of the seeds required for one year are gathered during the middle part of the season, taking care to avoid the earliest crops and also the last ones. The reason for confining the stock to the mid-season crops is this. The seeds collected at the beginning are not completely matured, and those at the end of the season are liable to be affected by the early rains of the monsoon, and by deficient sunshine. One of the peculiarities of this tree is that all the fruits do not become ripe enough for the sickle at the same time. Each tree presents fruits of varying ripeness, and it is not possible to differentiate between them while they are on the numerous slender twigs of a huge branchy tree. The fruits are, therefore, harvested indiscriminately in one lot, and the sorting is done afterwards under the supervision of experts. One has to be careful in this, as the admixture to any appreciable extent of undesirable seeds is likely to affect the quality of the oil.

Cleaning the seeds is an important matter to which special attention should be devoted. The pulpy coating found on the seeds has to be removed before they are dried and rendered fit for crushing. The method now in vogue amongst the villagers for doing this is most unscientific and slovenly. They bury the seeds as they are taken out from the pods in moist soil, till the pulp decomposes, and it is only after many days that these are taken out from the pits and dried. It is, no doubt, a little cheaper to leave the cleaning work to be done by the process of natural decomposition, but we know from experience that it is foolish economy to save a small sum in labour and sacrifice much of the properties of the oil thereby. The seeds should be thoroughly washed and dried at once. Unless

this is done, the seeds retain moisture for many days, and thus lose in quality, and the oil extracted from them invariably yields a higher percentage of free, fatty acids. Any attempt to reduce the acid value by other means may affect the therapeutic value of the drug.

After the seeds are well dried, they undergo a further process of sorting, under the direct supervision of an expert. As a result of this second inspection, sometimes as much as 15 to 25 per cent. of the stock goes out again as rejections. All the unseasoned and unhealthy seeds being thus carefully eliminated, the remainder are weighed and passed as fit for crushing.

Little need be said about the crushing, ordinary care in cleaning the machinery and utensils being almost all that is required in the process. One thing about which we are careful is that no excessive heat is applied at any stage of the extraction of the oil. We, however, expose the oil to sun's rays and open air for a few days, according to instructions we have received, and then allow it to stand undisturbed for about a month. It is then thoroughly filtered and after necessary tests, put up for sale.

Unlike dealers coming from Upper India, who have to content themselves with any seeds they can get in the bazaar, we are fortunate in the fact that our firm is situated in the heart of the *hydnocarpus* growing country, and, therefore, we have every facility for keeping a close watch over all the various details connected with the choice of the seeds. Selected areas are reserved as the field of operations every year, and it is possible for us to keep the produce on each tree under observation till the time for harvest. The long experience that our men have gained according to both the old and the new systems, which enables them now to lay their hands almost instinctively on the right sort of fruits or seeds, is an asset which we value the most.

The increasing demand during the past ten years of *hydnocarpus* products bears ample evidence of the growing popularity of our product. The pharmaceutical department of our company, whose turnover in the past under Ayurvedic patronage, never went above half-a-ton a year, has now to send out more than twenty times that quantity annually to different places in all the five continents.

It is interesting to note the difference of opinion between the Eastern and Western medical authorities. The Indian physician always holds that the older the oil the greater is its efficacy, whereas the Western doctor pins his faith on fresh supplies.