

Anatomical characters and identification of Formosan woods with critical remarks from the climatic point of view, with 300 micrographs

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INTRODUCTION.

(1) The present work consists of an anatomical study of Formosan woods, the object being to determine the anatomical characters of species, genera and families for the purpose of identification in practice. The present work may also serve as a basis for the comparative study of all the known species. Lastly there is an attempt to correlate the anatomical differences with climatic conditions.

(2) In chapter I, is treated the vegetational character of the ligneous flora of Formosa. In chapter II which includes an anatomical description of Formosan woods, following the order of BENTHAM and HOOKER's arrangement, there are also short descriptions of external and chemical characters such as colour, hardness, flavone content, etc. In chapter III will be found an artificial key for the identifications of Formosan woods. Chapter IV contains a summary and a critical remarks from the climatic point of view.

(3) In this work only secondary wood is investigated, primary wood being relatively unimportant and wholly negligible from a technological point of view.

(4) In the present work, the number of species actually investigated is 386, comprising 226 genera and 66 families; this is about 80% or more of the number of species of ligneous plants of Formosa and it includes almost all the genera of indigenous woods.

(5) In order to correlate anatomical differences with climatic conditions, the woods of the Philippines and Japan (excluding Formosa and Corea) have also been examined; the former comprise 160 species, 110 genera and 41 families; the latter 181 species, 104 genera and 38 families.

(6) The Philippine woods were obtained from the Bureau of Forestry, Manila and the Japanese woods mostly from the Forest Experiment Station attached to the Department of Agriculture and Commerce; the description of Japanese woods is appended to this work.

(7) The material of Formosan woods studied in this work have been collected by the present author with the exception of those that are very

common. The material was collected from the trunks of trees of medium size at least, since in the small or young trees the anatomical characters do not present their normal features; this is particularly evident in ring-porous woods.

(8) In making microscopic preparations, the wood was boiled with glycerin for several days, and in case of harder woods soaked in a solution of hydrofluoric acid for a period varying from 3 weeks to 3 months, the percentage of the solution depending upon the hardness of the wood but averaging 20 to 35%. After removing from the acid or glycerin the material was thoroughly washed and sectioned by a hand microtome making cross, radial and tangential sections, staining mostly with fuchsin and mounting in balsam.

(9) For the measurement of the wood elements and the observation of their characters, SCHULZ's method has been followed.

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