

THE DEPARTMENT OF THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

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DEPARTMENT.

A definite statement by an authority of what a college course should embrace is welcomed by all teachers of that subject. The study of applied botany, applied chemistry, applied physiology, as well as applied physics, is quite important in building such a professional curriculum as that of pharmacy. The leaf is the most important biochemical laboratory contributing to the welfare of man, and not only deserves considerable attention but should be a means of interesting students in botany. Several important drugs consist either of leaves themselves, or the active principles of leaves and therefore deserve particular attention in botany applied to pharmacy as well as in pharmacognosy. The following paper by Dr. Youngken will interest all teachers of botany.—C. B. JORDAN, *Editor*.

THE STUDY OF THE LEAF.

BY HEBER W. YOUNGKEN.*

Botany, like chemistry, has long been recognized as fundamental to the proper understanding of Pharmacognosy and Pharmacy. One of its most alluring phases is that dealing with the study of the leaf. The leaf and the flower are the two most necessary parts to have in hand in making certain and ready identification of an unknown plant. Of the many vegetable drugs, leaves rank second in number only to roots so that the importance of their fundamental study is obvious.

In the education of students of Pharmacy are we to look upon Botany merely as an academic course or are we to continue to recognize that, in addition to its cultural value, it has its professional pharmaceutical side which, if developed with the student by properly coördinating it with Pharmacognosy, will be of inestimable value when he comes to pursue the professional course in the latter subject?

Let us examine the content of each of two courses on the leaf phase of Botany, the first a typical academic course, the second a typical pharmaceutical one.

OUTLINE OF THE STUDY OF THE LEAF (ACADEMIC COURSE, 1ST YEAR BOTANY).

1. DEFINITION. Origin and Development of Leaves.
2. OUTER MORPHOLOGY OF THE LEAF—Leaf blade, petiole, stipules, venation, simple leaf, compound leaf (pinnately and palmately compound), leaflets, leaves of different forms on the same plant (heterophylly).
3. MICROSCOPIC ANATOMY OF THE LEAF. (a) Anatomy of blade of dorsiventral leaf. (b) Anatomy of petiole of dorsiventral leaf.
4. PHYSIOLOGY OF THE LEAF.
 - A. Photosynthesis. (a) Raw materials. (b) Sunlight, the energy factor. Relative effectiveness of different parts of the spectrum. (c) Function of chlorophyll. (d) Efficiency of the leaf in utilizing the sun's energy. Measurements of the quantity of light energy which is absorbed by the leaf and of the quantity which is utilized in photosynthesis. Demonstration, using a variegated leaf. (e) By-product. (f) End-products. (g) Rate of carbohydrate production. (h) Conditions influencing the rate of photosynthesis. (i) Utilization of the product of photosynthesis.
 - B. Transpiration. (Experiment with potted plant using bell jar. Experiment with Potometer in measuring rate of transpiration.)

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