

BOOK NOTICES AND REVIEWS.

Recherches Pharmaco-anatomiques sur Pimpinella Saxifraga L. et P. magna L. Pharmaco-anatomic researches on *Pimpinella Saxifraga L.* and *P. magna L.*, by JACOB MICHLIN, M.Ph., Pharmacist. Thesis presented to the Faculty of Science of the University of Lausanne, to obtain the degree of Sc.D. Paris Librairie Louis Arnette, 1926. 129 pages. 27 figures. A most painstaking piece of work. The author studies the anatomy of the vegetative organs of these two species of *Pimpinella* in great detail. The work is divided into five chapters, and a résumé and conclusion. In Chapter I, he describes the germination of the seeds, the plantlets and their primary structure. In Chapter II, he takes up the secondary structure of the roots. In Chapter III, he gives descriptions of the anatomical structure of the adult roots of the two species used as drugs and their adulterants. He gives here also a table, showing the comparative physical and anatomical characteristics of the two roots and three other roots, *Radix Pastinacæ*, *Radix Heraclei* and *Radix Peucedani*, generally found with them as adulterants. In Chapter IV, he describes the structure of the stems and petioles, and in Chapter V he describes the leaf.

In the Résumé and Conclusions, the author condenses the more interesting and important facts, stating first those that are alike for the two species, and second, those in which the two species differ. 1. The primary structure and development. The cortex of the root is homogeneous in both species, and is composed of isodiametric cells separated by triangular passages. The endodermis offers nothing peculiar, the Casparian dots appearing very early on the lateral walls. There are twelve secretory canals, originating from twelve pericyclic cells. According to Van Tieghem the number of canals vary among the Umbelliferae from 14-28, whereas the *Pimpinellæ* examined have but twelve. The primary structure of the root is diarch (and not triarch as maintained by Hofret and Tschirch). The formation of the cambium is noticed at the end of 10-15 days. It at first is more active on the external side, and only a little later lays down vessels opposite the phloem, and medullary ray against the primary xylem sectors. The epidermal layers begin to exfoliate. The pericycle divides tangentially and radially and gives rise to a phellogen layer which soon develops a zone of cork. The pericyclic secretory canals—there are as yet no other, find themselves between the cork and

the altered phloem. After the exfoliation of the primary cortex, the root within 6-8 weeks takes on the aspect of the adult root. Ligneous fibers and secondary secretory canals do not form until the second year; then all the cortical parenchyma contains secondary canals arranged in radial rows in concentric circles. These canals differ from the primary pericyclic canals by their smaller caliber and by the number of epithelial cells.

2. Comparison of the anatomical characters of the adult vegetative organs of *Pimpinella Saxifraga* and of *P. magna*. Root.—Less long and darker in *P. Saxifraga* than in *P. magna*. Bark and wood of the same thickness in *P. Saxifraga*; bark thicker than the wood in *P. magna*. Fibers around the vessels, lignified and more numerous, with lumen smaller in *P. magna* than in *P. Saxifraga*. Medullary rays thicker (5-8 rows), cells only slightly elongated, the ray enlarging towards the periphery in *P. magna*; less thick (3-6 rows), not elongated, and much the same thickness throughout in *P. Saxifraga*. The lack of radial elongation of the cells of the medullary ray, contrary to that observed among other Umbelliferae is, it seems to the author the most evident characteristic, which permits one to distinguish the drug from its adulterants. Secondary secretory canals are more numerous in *P. magna* than in *P. Saxifraga*, in the latter, however, being broader (20-50 M in *P. magna*, against 30-70 M in *P. Saxifraga*). The primary secretory canals are larger than the secondary canals in both species, being larger in *P. magna* than in *P. Saxifraga*.

With equal care the author summarizes the characteristics of the stem, the petiole and the leaf, and shows how the two species differ also in these organs.—CHARLES C. PLITT.

Organic Laboratory Methods. By the late PROFESSOR LASSAR-COHN. Authorized translation by Ralph E. Oesper, Ph.D. of the General Part of the 5th Revised German Edition. Edited by Rodger Adams and Hans T. Clarke. The Williams and Wilkins Company, Baltimore, Maryland. Price \$6.50.

This volume is number two of the World Wide Chemical Translation Series edited by E. Emmet Reid, Professor of Organic Chemistry, The Johns Hopkins University. The claims and purpose of the book are well expressed in the translator's preface in which it is stated that the book makes no claim as to