

presence of aconite stems in powdered aconite is clearly shown by the fibers (4), by the thicker-walled parenchyma cells (2), by the epidermis with stoma (10), and by fewer stone cells. The fibers can also be determined chemically by an estimation of the crude fiber.

#### STRUCTURE OF THE CROSS SECTION OF ACONITUM NAPPELLUS STEM.

In the cross section of the larger stem bases of *aconitum napellus*, there are fifty or more bundles. The fibers form nearly a complete ring with an arch of fibers just outward from each phloem portion of the bundle and extending inward often completely enclosing the xylem and forming a closed collateral bundle. This is true only of the older formed bundles. As the stem increases in diameter new bundles are formed which at first have fibers surrounding only the phloem portion of the bundle and then only a few cells wide. The cross section exhibits the following structure: The epidermal cells (1) are radially elongated, thin-walled cells with reddish-brown contents; the cortical parenchyma cells (2) are thick-walled, nearly circular in outline, with prominent, mostly triangular intercellular spaces, becoming smaller and smaller as we near the fibrous sheath. Among the cortical parenchyma cells are found large thin-walled stone cells (3). Frequently not more than one is found between the epidermis and the fibrous layer, while in other sections several stone cells occur. The fibers (4) have a rounded outline, the walls are yellowish-white, thick, with small cell cavity and show clearly the line of separation of the fibers, which appear as a dark line between the cells. The fibers (8) inward from the xylem are thinner-walled than those surrounding the phloem. The cells of the phloem (5) are thin-walled and irregular in outline, no sharp distinction being seen between true sieve cells and surrounding cells. In some of the bundles the cambium cells are quite distinct; while in other bundles no characteristic cambium was observed. The conducting cells of the xylem (6) vary greatly in diameter and are surrounded by parenchyma cells (7). The pith parenchyma cells (9) are thick-walled, nearly circular in outline and filled with starch grains. The intercellular spaces (10) are larger than in the cortex and they are quite frequently quadrangular or pentangular.

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