

MORPHOLOGICAL AND ANATOMICAL STUDIES OF LEAVES OF SCORZONERA HISPANICA

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The aim of our research was to study the morphological and anatomical features of leaves of *Scorzonera hispanica* L. Plants were grown in *Botanical garden of* National University of Pharmacy and harvested in the first year life. For anatomical study were used leaves fixed in a mixture of glycerol:alcohol:water (3:2:1), specimens were prepared by commonly accepted techniques, exam under microscope MBI-G, magnification x400 or x600 and camera "Canon PowerShot A720 IS". Leaves formed in compact erect or slightly spreading root rosette. Leaves stalked, egg-shaped or prolate-lanceolate, acuminate, with many veins, entire or wavy edges, light green color, up to 35 cm in the lower and middle part of the stem, stalk-wrapped at the base, prolate-lanceolate, upper leaves are spicular.

Leaves have dorsiventral type of structure. The upper and lower epidermises are single-layered. The upper epidermis has densely located almost rectangular or oval cells. Cells of the lower epidermis are parenchymatic with wavy, irregularly thickened cell walls. Stomata are located regularly on the upper epidermis and are abundant on the lower epidermis. Actinocytic stomata cells are round or slightly elongated in shape and have 4 or 5 guard cells. On the upper and lower epidermis are located large simple unicellular trichomes. Trichomes branched into 4-6 long rays with thin cell walls, often twisted and deformed. On the lower and upper epidermis there are small round regular-shaped glandules of essential oil, that are typical for Asteraceae family. Assimilation system consists of palisade parenchyma and harvesting cells. Palisade parenchyma is located perpendicularly to the cells of the upper epidermis and is composed of one or two layers of cells where photosynthesis takes place. Below are loosely located round shaped harvesting cells. Besides the function of photosynthesis, harvesting cells accumulate products of photosynthesis, which formed in palisade parenchyma cells. Further to the lower epidermis the entire space occupied by loosely placed oval-rounded or slightly elongated cells of spongy parenchyma. Good visible latex tubes - multicellular segmented without anastomoses, located along the leaf veins, their lateral branching sprouts are pierced all mesophyll. Latex tubes are filled with latex, which becomes brown-orange color being treated with alkali.

Central vein represented by open bicollateral vascular bundles with two areas of phloem, that are oriented outward and toward the center of the xylem. Between the external phloem and xylem areas is cambium. Other vascular bundles are collateral, open, with well-defined xylem as well. In the veins, phloem is oriented to the underside of the leaf blade, xylem - to the top. There are all the histological elements of these tissues in the phloem and xylem of leaves. Near the veins located the surrounding parenchyma cells. Established morphological and anatomical features of leaves of *S. hispanica* will be used for QCM (Quality Control Methods) developing.