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The Microscopic Study of *Rhus typhina* L. Leaves

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Background: Scientists are increasingly interested in polyphenolic components of plants with antimicrobial activity [1]. One of the ways to replenish natural sources of polyphenolic compounds is to use invasive species as a source of tannins, such as *R. typhina*, which has spread uncontrollably across Ukraine. Microscopic features of medicinal plant materials are important for the diagnosis of raw materials, especially in the identification of impurities.

Aim: To determine the microscopic characteristics of *R. typhina* leaves.

Methods: Microscopic studies were carried out by light microscopy method [2].

Results: The leaf of *R. typhina* is dorsoventral, hypostomate. The upper epidermis consists of thick-walled rhombic cells with simple straight pores, tightly adjacent to each other. Cells of the lower epidermis are rectangular-convex with numerous actinocytic stomata. Stomatal index 15.25 ± 1.5 %. The surface of the leaf blade is covered with glandula head trichomes with a multicellular stalk and head with light brown contents inside the cells. The epidermis of rachis is represented by rectangular tightly closed cells with very strong pubescence by simple multicellular trichomes and rare glandula head trichomes with a multicellular stalk and head. There are rows of cells with druses in the epidermis of the rachis. The cross-section of the rachis consists of three main parts: the integumentary, the cortex, and the central cylinder. The integumentary part is covered by an epidermis with trichomes. The cortical part consists of 4-6 layers of lamellar collenchyma cells followed by 3-4 strips of chlorenchyma. The central cylinder is represented by collateral closed vascular fiber bundles arranged in an orderly circular pattern, with clearly visible bast fibers and a core in the center.

Conclusion: It has been established that the main diagnostic anatomical features of *R. typhina* leaves are the presence of druses, two types of trichomes: simple multicellular and cephalic and an actinocytic stomatal apparatus.

References:

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2. The State Pharmacopoeia of Ukraine (SPhU) DP "Ukrainian scientific farmakopeinyi tsentr yakosti likarskykh zasobiv". 2nd ed. Kharkiv 2015;1:377.