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MICROMORPHOLOGY AND ANATOMY OF *Nigella hispanica* DURING THE FLOWERING STAGE

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At present, the most studied species in genus *Nigella* are *N. sativa* and *N. damascena*, because of their medicinal and culinary significance, and ornamental properties, respectively. The knowledge about biology of other species remains fragmentary, despite their value in ecological and evolutionary studies, and potential as a source of novel bioactive compounds. Anatomical information on this species is still scarce. The aim of the present study was to examine the micro-anatomical characteristics of a less known genus representative, *N. hispanica*.

The research material used was represented by plants in the flowering stage, collected in July 2025, M.M. Gryshko National Botanical Garden of NASU. Samples were fixed in buffered 4% formalin solution. Unstained and stained (with 0.2% methylene blue water solution) sections were examined by XZS-PW207T microscope, and photomicrographs captured with camera Euromex CMEX-12f.

This study has shown that the *N. hispanica* stem had a multi-cornered structure. The difference in diameter of main stem and second-order lateral shoot was insignificant, yet the ribs were most prominent in main stem. The stem is composed of the following elements: the epidermis, the cortex, the vascular bundles, and pith. The epidermis was single-layered, formed by round-shaped cells. Also, simple non-glandular trichomes could be observed. The cortex was represented by the 5-7 layered chlorenchyma. In the ribs, the areas of developed lacunar collenchyma tissue, could be detected. The conductive system was represented by closed vascular bundles of different sizes, consisting of triangular or round sclerenchyma cap, relatively small phloem region, and group of variable xylem vessels. The sclerenchyma tissue con-

sisted of small cells with thick walls. It is interesting to note, that sclerenchyma caps in second-order lateral shoots often contained large cells with thin walls, and irregular shape. Between the bundles, large parenchyma cells could be detected. Also, in the main stem, the hole in the center of the pith was observed, surrounded by semi-ruined parenchyma cells. The leaf was covered in uniseriate epidermis on both adaxial and abaxial sides, with large-sized stomata cells. No trichomes were detected. The leaf mesophyll was homogeneous, dense and thick, consisting of several layers of small cells. Leaf venation was indistinct. The structure of vascular bundles in midrib and veins were similar to ones in the stem.

We found that a lot of micro-anatomical features of *N. hispanica* are common to other species of genus *Nigella*. To our knowledge, we are first to describe the presence of thin-walled large cells in schlerenchyma, in second-order lateral shoots. No anatomical abnormalities were observed, indicating normal structural organization of the studied vegetative organs.

Keywords: *Nigella hispanica*, microanatomy