

### 23. MICROSCOPIC RESEARCH OF CASSIA OCCIDENTALIS (L.) LINK SPECIES

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**Introduction.** The species *C. occidentalis* with common name Coffee Senna, family Fabaceae, native to the tropical and subtropical regions of America, today is widely cultivated in different regions of the world. This species has been introduced in the collection of IGPhPP of the Republic of Moldova in 2018. For pharmaceutical application of the medicinal plant products, the modern complex of biological research, including the microscopic one, is needed.

**Aim of study.** Highlighting the anatomic specific parameters of the plant organs based on the microscopic study.

**Methods and materials.** Biological materials of *C. occidentalis* species were harvested from IGPhPP collection during the vegetative period of 2021 year. About 300 micrographs obtained on 50 cross-sectioned and 150 superficial micropreparations were analysed in Mikos optical microscope coupled with computer software.

**Results.** The results of the micrographic analysis of cross and superficial views allowed to distinguish: histological zonation on the cross-section of root and stem (periderm, cortex and central cylinder with open collateral vascular bundles, established after secondary growth), pericarp of the pod fruit (epi-, meso- and endocarp); anatomical type of leaf blade – dorsoventral (the palisade parenchyma is on the adaxial side of the blade and the spongy parenchyma on the abaxial one) and amphistomatic with para- and anisocytic stomata, which are more on the abaxial epidermis. Microscopic analysis allowed the elucidation of specific anatomical parameters for each organ: vascular bundle sheath with polygonal calcium oxalate crystals and druses in stem, leaf blade and rachis parenchyma, only druses in fruit pericarp and only vascular bundle sheath with polygonal crystals for root. Large, multicellular, brownish glands on stem, rachis, leaf blade and fruit epidermis. Unicellular (sometimes multicellular), long and slender, but rarely occurring, non-glandular trichomes are characteristic for stem, fruit, leaf rachis and blade epidermis. The conical mamelous protuberances are specific for petal epidermis. All organs of the plant contain anthraquinone, as a result of positive chemical reaction (reddish staining) with 3% NaOH, but with a different gradient, most pronounced in seeds than in fruit, leaves and stems.

**Conclusion.** Multifactorial and comparative microscopic study of the organs of the Coffee senna plant *C. occidentalis* allowed to elucidate the specific anatomical parameters for each organ that will serve as a structure indicator to determine with certainty the medicinal plant products and taxonomy of the plant species.