

## COMPARATIVE ANATOMICAL STUDY OF LEAVES OF MONARDA FISTULOSA AND MONARDA DIDYMA

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*Monarda didyma* – **bee balm** has bright, carmine red blossoms and is commonly known as oswego tea. *Monarda fistulosa*, commonly known as wild bergamot, has lavender or smoky pink flowers. Both spices belong to *Lamiaceae* Family. Bee balm is the natural source of the antiseptic thymol, the main active ingredient in modern commercial mouthwash formulas. Bee balm tea was used to treat mouth and throat infections caused by dental caries and gingivitis, as a carminative herb and an infusion of crushed bee balm leaves in boiling water has been used to treat headaches and fevers. The aim of our study was conducting anatomical investigation and revealing the distinguishing features of anatomical structure theirs leaves.

During anatomical studies of *Monarda fistulosa* and *Monarda didyma* their common features have been revealed. There are common diagnostic features in both species – parenchymatous cells of upper and lower epidermis with sinuous cell walls, cells are covered by many papillas. On the upper epidermis presence the multicellular simple trichomes and glandules with orange secret and surrounded by 13-15 radial-located rosette of cells. The stomas are present only beside cells of the lower epidermis.

Distinguishing features of leaf anatomical structure in *Monarda didyma* include presence 7 cells of rosette around simple hairs of lower epidermis, cells of epidermis with green content. *Monarda fistulosa* – presence in the central part of leaf plate the glandular hairs with one-celled stalk and one-celled head filled with brown secret.

The upper epidermis of *Monarda didyma* has next distinguishing features – stomatal apparatus is diacytic and anisocytic. Trichomes are 2-5 celled, 2-celled hairs has rosette around basic cell consists from 5 epidermal cells. All surface of leaf plate covered by glandules with orange secret and surrounded by 13-15 radial-located rosette of cells and glandules with the same structure, but contains the green secret. The upper epidermis of *Monarda fistulosa* characterized by presence of diacytic and anomocytic stomatal apparatus, long multicellular (up to 11 cells) and presence only one kind of glandules – with orange secret.

Morphological and anatomical characteristics of leaves of *Monarda didyma* and *Monarda fistulosa* will be used in standardization of raw materials and determination of species systematic position.