

ANATOMICAL TRAITS OF AMPHORICARPOS NEUMAYERIANUS – ENDEMIC AND RELICT SPECIES OF COMPOSITAE

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The genus *Amphoricarpus* comprises heterocarpic perennial mountain chasmophytic plants from the eastern Mediterranean (the Balkans, Anatolia and the Caucasus) of complex taxonomy [1]. There are three taxa distributed on the Balkan Peninsula: *A. neumayerianus* (Vis.) Greuter, *A. autariatus* Blečić et Mayer ssp. *autariatus* Blečić et Mayer and *A. autariatus* Blečić et Mayer ssp. *bertisceus* Blečić et Mayer [2, 3]. Some authors have suggested that all Balkan *Amphoricarpus* should be treated as a single species, *A. neumayerianus* [4]. In this work, anatomical investigations of vegetative organs of *A. neumayerianus* s. str., a Tertiary relict from Mt. Orjen (Montenegro), endemic for the Dinaric Alps, were conducted. The aim of this study was to investigate anatomy and to find possible new valid taxonomic characters. Microscopic slides were prepared following the standard histological procedures [5].

Results and discussion

- Young adventitious root show a typical structure, while sclerenchyma fibers are present in the center of older root (Fig. A1).
- On the rhizome cross section, secondary tissues are noticed with wide parenchyma rays which interrupt a well developed xylem (Fig. A2-3).
- Rhizomes show eccentric growth (Fig. A3). Evans et al [6] reported this interesting phenomenon of eccentricity in the stems of *Artemisia tridentata* Nutt. The eccentric xylem growth can be result of changes in precipitation (availability of water) and also may have role in development of peduncle.
- The leaf blade is amphistomatous, with dorsiventral structure (Fig. A4-5). One vascular bundle, or one large and two small vascular bundles are in the heart shaped main vein, with a surrounding parenchyma sheath which extended to both epidermises (Fig. A4).
- This trait (dorsiventral structure) is particularly important for the phylogeny and taxonomy of the Xerantheminae, as it is conserved in two *Xeranthemum* species [7] that grow at open, arid habitats.
- Crystal druses are found in leaf epidermal and mesophyll cells (Fig. A5) which were not found in the leaves of related *Xeranthemum* species [7].
- The peduncle cross section is characterized by more or less polygonal shape with medullary collateral vascular bundles arranged in a circle, and a few of them outside of the circle, toward to cortex region (Fig. A6-7). Peduncle anatomy of the examined species is typical one described for the Asteraceae [8].
- Secretory canals are absent in all structures (Fig. A1, 2, 4, 6), as was also documented for related *Xeranthemum* species [7].
- Densely distributed vermiform (lanate) and glandular biserial trichomes are present on the peduncle (Fig. A6) and on both leaf sides, but much more on the abaxial (Fig. A5), which was documented for other Xerantheminae taxa [9].

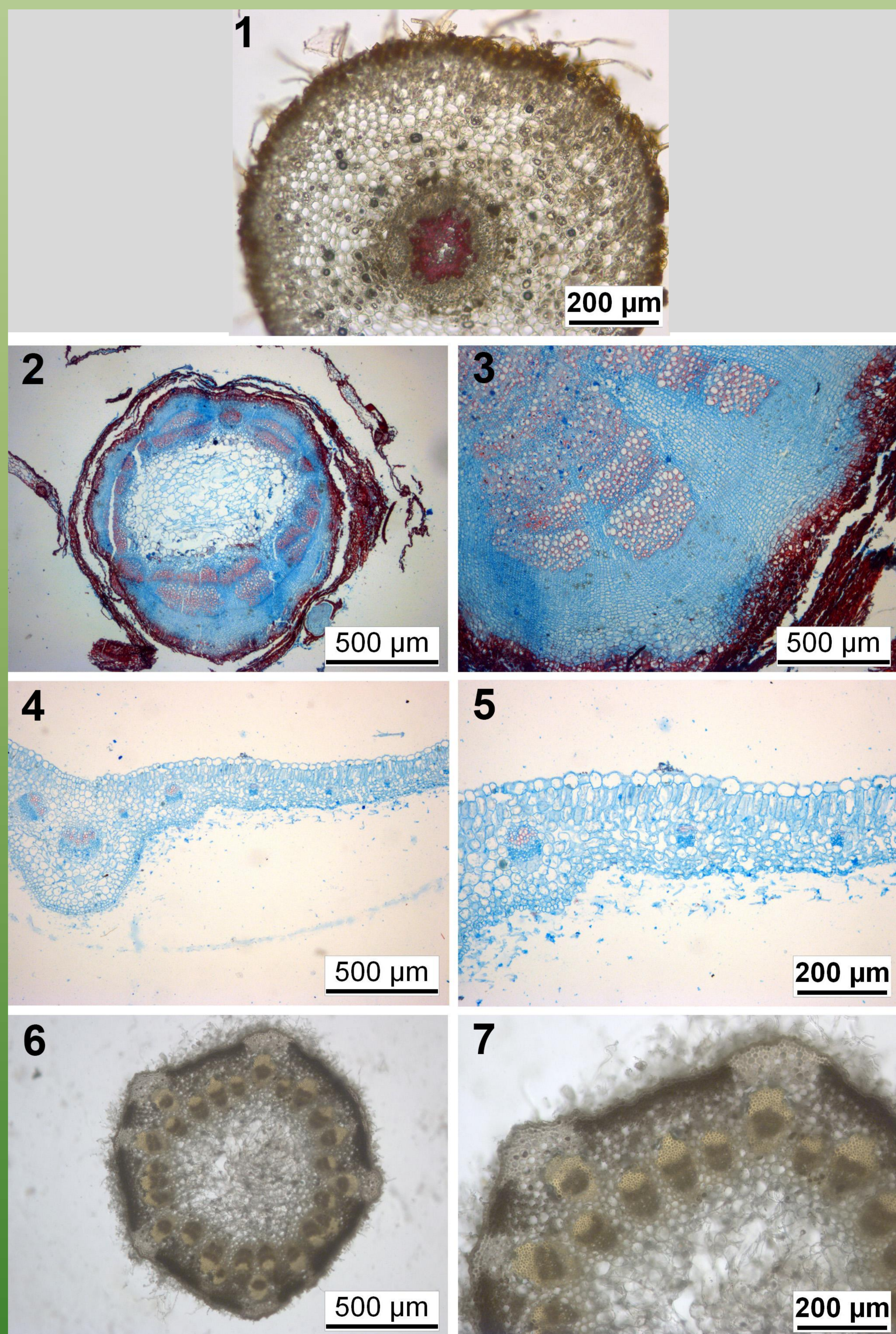


Fig. A. Anatomy of *A. neumayerianus*. 1 adventitious root. 2, 3 Rhizome. 4, 5 Leaf. 6, 7 Peduncle.

Conclusion

Examined observations could be useful in resolving taxonomic relationships of *A. neumayerianus* and other *Amphoricarpus* taxa, as well as with related Xerantheminae. Similar anatomical investigation should be done on other species of Xerantheminae.

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