

Tilia × *haynaldiana* Simonk. (*T. platyphyllos* Scop. × *T. tomentosa* Moench) in Northern Greece

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Abstract. The article provides information on the occurrence of *Tilia* × *haynaldiana*, a hybrid of *T. platyphyllos* and *T. tomentosa*, in Greece. This hybrid has been previously known to exist only in Northwest Romania and Montenegro. *T. haynaldiana* combines two characteristic features of its parental species: the ribbed fruits of *T. platyphyllos* and the stellate indumentum of *T. tomentosa*. Probably, such hybrids are more common than reported earlier but often are not distinguished from their parental species.

Key words: epidermis, Greece, hybrids, indumentum, *Malvaceae*, SEM

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While digitising herbarium materials of the Institute of Dendrology in Kórnik, the authors have noticed some peculiar herbarium specimens of a lime collected in Greece in 1981 near the town of Kastania in western Thessaly and identified as *Tilia platyphyllos* Scop. (Fig. 1). Due to the slightly hairy leaves and ribbed fruits, which are typical for this species, its initial identification seemed appropriate. Howev-

er, upon closer examination of the plants (including the use of a scanning electron microscope Hitachi S3000N equipped with a secondary electron detector) it became evident that they differ from other specimens of *T. platyphyllos* in their leaf indumentum, which consisted solely of (4-)5-8-armed stellate hairs. The stellate hairs have been unevenly scattered on the abaxial side of the leaf blades (Fig. 2A, B). They have



Fig. 1. Herbarium specimen of *Tilia* × *haynaldiana* collected in Thessaly, near Kastania (Greece),
<https://rcin.org.pl/dlibra/publication/274368>.

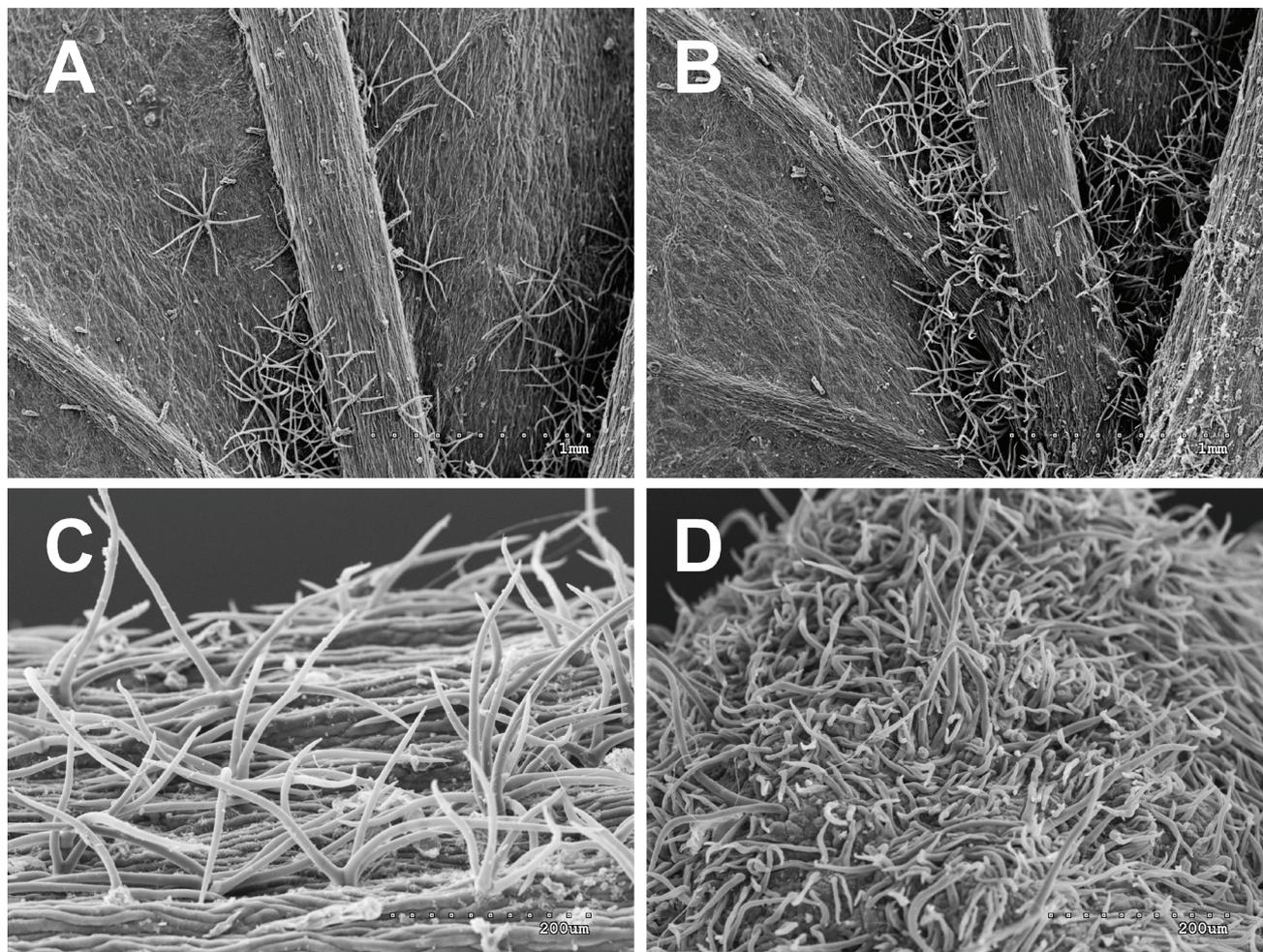


Fig. 2. SEM micrographs of selected stem parts of *Tilia xhaynaldiana*. A: indumentum of the abaxial leaf surface consisting of 4-8-armed stellate hairs; B: stellate hairs mainly located on the abaxial part of the lamina and concentrated near the central vein, especially in the junctions of lateral veins (in addition to stellate hairs, numerous glandular hairs occur on the main veins); C: stellate and fascicled hairs on the leaf petiole; D: densely hairy terminal bud.

been also present on the leaf stalks (Fig. 2C) and on the youngest terminal segments of the shoots and buds (Fig. 2D), but mixed with fascicled and simple hairs there. Among European limes, such stellate indumentum occurs only in *T. tomentosa* Moench. However, in this species, it has been much denser and more persistent, especially on the lower (abaxial) side of the leaves (Fig. 3). Furthermore, *T. tomentosa* fruits are \pm smooth, in contrast to the ribbed fruits of the specimens in question.

The ranges of *T. platyphyllos* and *T. tomentosa* overlap notably in Greece. Therefore, it can be assumed that the peculiar lime tree from Thessaly (KOR 27423) has been their hybrid, as it combined the typical char-

acteristics of the above taxa, i.e., ribbed fruits of the former and stellate indumentum of the latter. That seems even more likely, given that a herbarium specimen of one of the putative parental species, *T. tomentosa* (KOR 27415), was collected nearby.

Hybrids of *T. platyphyllos* and *T. tomentosa* were first discovered in 1887, in the Arăneag area, the border regions of SW Romania, and described as *T. xhaynaldiana* Simonk. (Simonkai 1887). As far as it is known, apart from Romania, that hybrid has been recorded only on a natural site near Kolašin in Montenegro (Pigott 2012). Occasionally, it has been recognised in cultivation, as was the case with the monument lime tree growing near Barnova Monas-

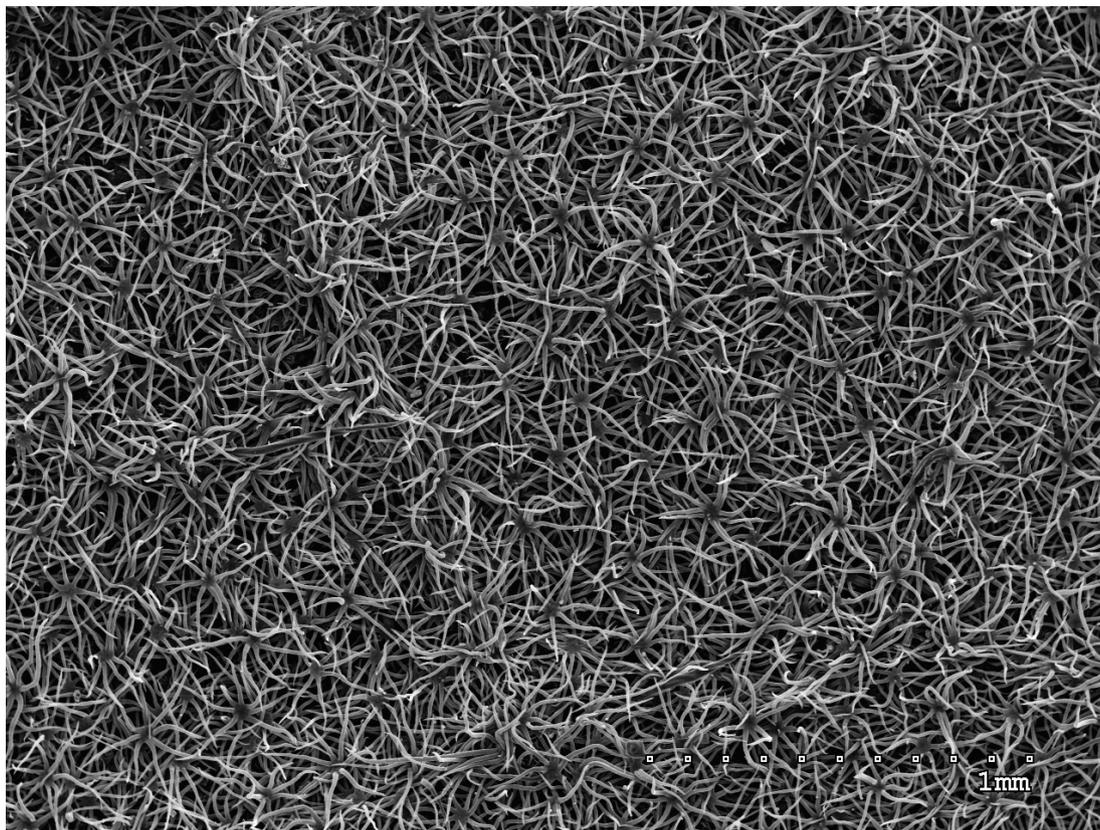


Fig. 3. Stellate-hairy abaxial leaf surface of *Tilia tomentosa* (herbarium specimen KOR 27415) collected from a tree growing nearby *Tilia* × *haynaldiana*.

tery in NE Romania, estimated to be about 660 years old (Tenche-Constantinescu & al. 2015). According to Soó (1966), the *T. platyphyllos* × *tomentosa* hybrid was also found in the town of Balatonfüred on the northern shore of Lake Balaton, described as *T. ×fueredensis* Herm. ex Borbás, a taxon currently recognised as a synonym of *T. ×haynaldiana* (<https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:835327-1>).

The phenomenon of hybridisation between *T. tomentosa* and *T. platyphyllos* is not surprising, despite some differences in the flowering time of these species. Still, its intensity and the area where it occurs are difficult to assess. Undoubtedly, hybrids of both lime species are much more common than it has been thought earlier. Upon superficial examination, they can be easily mistaken for one of the parental species.

The locality of *Tilia* × *haynaldiana* in Greece: Thesaly, in the thin and loose groves on the slope below the road from Kastania to the Kalabaka - Ioannina

- Grevena road branching (westwards and about half-way of the branching), 25.09.1981, leg. A. Boratyński, K. Browicz & J. Zieliński 1760 (KOR 27423), 39°43'37" N, 21°27'53" E (approximate coordinates).

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