***Acer integerrimum* (Viviani) Massalongo 1859 (Sapindaceae)**

Leaf description

- **morphology:**
  organisation: simple; **petiole:** long; **shape:** palmately lobed with 3–5 lobes, central lobe usually longer and wider than the lateral ones, lobe apices tapering into more or less elongated apices, shape of the lobe apices acuminate to straight or somewhat concave, sinus between lobes widely rounded to acute; **leaf base:** base angle wide obtuse to reflex, shape rounded to cordate; **leaf apex:** apex angle narrow acute to obtuse; **margin:** untoothed; **1°-vein framework:** palmate, 3–5 main veins depending on the number of lobes, arising palmately actinodromous, strong, running straight into the lobe apices; **2°-vein framework:** secondaries eucamptodromous usually hardly visible near the margin, intersecondaries: present; **3°-vein framework:** tertiaries and higher order veins delicate reticulate.
- **cuticle:**
  very delicate, rarely and mostly very fragmentarily preserved only; hypostomatic; **adaxial cuticle:** smooth, surface finely striate above veins, anticlines straight to slightly curved, vaguely visible, cell outlines quadrangular to polygonal up to 30 µm across; **abaxial cuticle:** smooth, anticlines and cell outlines as adaxially, 15–25 µm across, stomatal complexes anomocytic, somewhat irregularly scattered, sometimes loosely grouped; stomata roundish, rather uniform in size, 13–25 µm long, 9–17 µm wide, peripheral wall of guard cells distinct, outer front cavity broadly oval to spindle-shaped, not reaching the poles, 6–12 µm long, pore slit-like; simple, solitary, trichomes above veins, base roundish, diameter 15–18 µm, trichome flagelliform, up to 250 µm long.

Palecology

- **habitat:** mesic habitats
- **vegetation type:** mixed mesophytic to broad-leaved deciduous forests
- **life form:** tree
- **foliage persistence:** deciduous leaves
- **flower ecology (pollination):** ?
- **fruit ecology (dispersal):** wind-dispersed (anemochorous)

Stratigraphy / Distribution

- **stratigraphy:** Miocene, Pliocene to Upper Pleistocene
- **distribution:** In Lower to Middle Miocene floras of Central Europe often as accessory element; more common in Upper Miocene/Pliocene floras of Europe (Germany, Willershausen, France, Italy, Romania).

Miscellaneous

- **synonyms:** –
- **modern relationship:** *Acer cappadocicum* GLEDITSCH thriving in the Caucasus region, SW-Asia to the Himalaja and *Acer pictum* THUNB. in eastern Asia from Japan to China, Korea and easternmost Russia.

- **remarks:** Characteristic are the number of lobes (usually 5) and gradually tapering and elongated slender lobe apices. Similar morphospecies are *A. integrilobum* and *A. pseudomonspessulanum* which are three-lobed. In *A. integrilobum* the apex of the central lobe often is a bit offset. *A. pseudomonspessulanum* leaves are smaller and the lobes are less elongated. In fossil assemblages, this species occurs often as accessory elements. The late Miocene and Pliocene record is richer, e.g. Willershausen (Germany), Massif Central (France), Crespia (Spain), Italy.

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23 macroscopic leaf traits are stored in *Digiphyll*

#	trait code	trait: charcters state
1	A-1.2	petiole: present
2	A-1.2.2	petiole, present: long
3	A-2.1	leaf organisation: simple
4	A-3.6	leaf shape: lobed
5	A-3.6.2	leaf shape, lobed: palmately lobed
6	A-4.2	leaf base angle: obtuse
7	A-4.3	leaf base angle: reflex
8	A-5-1	leaf base shape: without basal extension
9	A-5.1.2	leaf base shape, without basal extension: rounded
10	A-5.2	leaf base shape: with basal extension
11	A-5.2.1	leaf base shape, with basal extension: cordate
12	A-6.1	leaf apex angle: acute
13	A-7.1	leaf apex shape: attenuate (straight)
14	A-7.2	leaf apex shape: acuminate
15	A-8.1	leaf margin: untoothed
16	B-1.2	primary vein framework: palmate
17	B-1.2.1	primary vein framework, palmate: actinodromous
18	B-1.2.1.1	primary vein framework, palmate, actinodromous: basal actinodromous
19	B-3.2	intramarginal vein: absent
20	B-4.2	intersecondaries: absent
21	B-5.1	tertiary vein framework: percurrent
22	B-5.1.1	tertiary vein framework, percurrent: opposite
23	B-5.1.2	tertiary vein framework, percurrent: alternate

For a detailed description of the leaf traits see menu *Manuals*.

? microscopic leaf traits are stored in Digiphyll

comming soon

Fossil images

References

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