

Zelkova zelkovifolia (Unger) Bůžek & Kotlaba 1963 (Ulmaceae)

Leaf description

- **morphology:**
leaves chartaceous; **organisation:** simple; **petiole:** short, often bent; **shape:** elliptic, ovate, obovate, often asymmetrical; rather small-sized (few cm long only) with rather large marginal teeth; **leaf base:** base angle wide acute to obtuse; base shape convex, rounded or slightly cordate, often distinctly asymmetrical; **leaf apex:** apex angle mainly acute, apex shape straight forming an acute apex or slightly acuminate; **margin:** toothed, simple dentate; teeth not dense, big sized, both sides of the teeth convex; tooth apex acute or rounded, tooth sinus acute; **1°-vein framework:** pinnate; **2°-vein framework:** craspedodromous, veins ending in the tooth apices, single secondaries forking; from the secondary entering a tooth, a veinlet arises running into the tooth sinus; **3°-vein framework:** tertiaries (forked) percurrent, sinuous, higher order venation reticulate.
 - **cuticle:**
not specified
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Paleocology

- **habitat:** riparian to mesophytic habitats
 - **vegetation type:** mixed mesophytic, broad-leaved deciduous, subhumid sclerophyllous forests
 - **life form:** mixed mesophytic, broad-leaved deciduous, subhumid sclerophyllous forests
 - **foliage persistence:** deciduous leaves
 - **flower ecology (pollination):** wind-pollinated (anemophilous) ?
 - **fruit ecology (dispersal):** wind-dispersed (anemochorous)
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Stratigraphy / Distribution

- **stratigraphy:** Early Oligocene to Pleistocene
 - **distribution:** From the early Oligocene (e.g., Kazakhstan, Saxony, N-Bohemia) onwards, especially widespread across Europe from the early Miocene to the Pliocene, during the late Pliocene and Pleistocene the number of records decreases being successively restricted to southern Europe.
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Miscellaneous

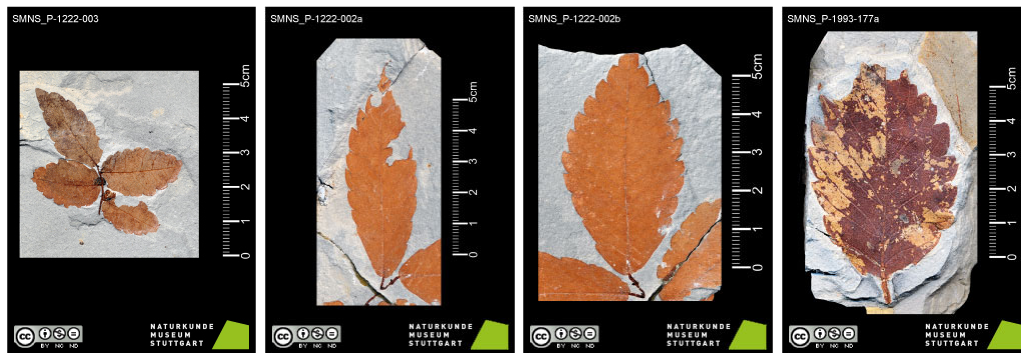
- **synonyms:** *Zelkova zelkovaefolia*, *Planera ungeri* ETTINGSHAUSEN, *Zelkova ungeri* (KOVATS) UNGER, *Zelkova praelonga* (UNGER) BERGER
 - **modern relationship:** Today, *Zelkova* occurs as relict in the Mediterranean (Sicily, Crete) and W-Asia. Three species are known from E-Asia (China, Japan, Korea).
 - **remarks:** In the fossil record, branches with several leaves still attached are well known. Rarely, single teeth may show a second order tooth.
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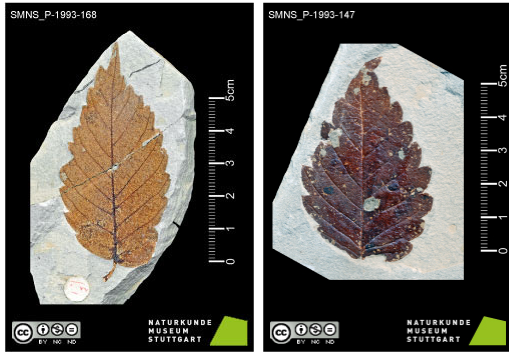
30 macroscopic leaf traits are stored in *Digiphyll*

#	trait code	trait: charcters state
1	A-1.2	petiole: present
2	A-1.2.1	petiole, present: short
3	A-2.1	leaf organisation: simple
4	A-3.1	leaf shape: elliptic
5	A-3.2	leaf shape: obovate
6	A-4.1	leaf base angle: acute
7	A-4.2	leaf base angle: obtuse
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-8.2	leaf margin: toothed
16	A-8.2.1	leaf margin, toothed: crenate
17	A-8.2.2	leaf margin, toothed: dentate
18	A-9.1.1	leaf teeth, order number of teeth: simple order (first order)
19	A-9.2.1	leaf teeth, tooth density: dense
20	A-9.3.2	leaf teeth, tooth size: big
21	A-9.4.1	leaf teeth, tooth apex shape: acute
22	A-9.4.2	leaf teeth, tooth apex shape: rounded
23	A-9.5.1	leaf teeth, tooth sinus shape: acute
24	B-1.1	primary vein framework: pinnate
25	B-2.1	secondary vein framework: 2°-veins reach margin
26	B-2.1.1	secondary vein framework, 2°-veins reach margin: craspedodromous
27	B-3.2	intramarginal vein: absent
28	B-4.2	intersecondaries: absent
29	B-5.1	tertiary vein framework: percurrent
30	B-5.1.3	tertiary vein framework, percurrent: mixed

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

Fossil images





References

- **Hantke R. (1954):** Die fossile Flora der obermiozänen Oehninger-Fundstelle Schrotzburg (Schienerberg, Süd-Baden). – *Denkschriften der Schweizerischen Naturforschenden Gesellschaft*, 80/2: 1-118.
- **Heer O. (1856):** Flora tertiaria Helvetiae II. – *Winterthur (Wurster & Comp.)*: 177 pp.
- **Knobloch E. (1998):** Der pliozäne Laubwald von Willershäusen am Harz (Mitteleuropa). – *Documenta naturae*, 120: 1-302.
- **Rüffle L. (1963):** Die obermiozäne (sarmatische) Flora vom Randecker Maar. – *Paläontologische Abhandlungen*, I, 3: 139-298.

Version: 2019-04-30