***Populus populina* (Brongniart) Knobloch 1964 (Salicaceae)**

Leaf description

- **morphology:**
  leaves chartaceous, paper-like; **organisation:** simple; **petiole:** long, up to at least 7 cm; **shape:** broad ovate to broad elliptic, usually 5 to at least 10 cm long, often as wide as long; **leaf base:** base angle obtuse, base shape mainly truncate to somewhat concave or slightly cordate; **leaf apex:** apex angle (wide) obtuse but in uppermost part (narrow) acute, apex shape acuminate to almost acute; **margin:** dentate, near the base entire, teeth regularly spaced medium dense, about 1–2 per cm, tooth size neither very small nor really big but distinct, more or less hook-shaped, tooth apex rounded, glands at the apex sometimes recognisable, tooth sinus rounded; **1°-vein framework:** actinodromous with three distinct main veins and often two further lateral ones, which are distinctly weaker developed; **2°-vein framework:** craspedodromous to semicraspedodromous, secondaries running directly or after forking into the marginal teeth or looping among each other and sending further veinlets towards the teeth; intersecondaries occasionally present, weakly developed; **3°-vein framework:** (forked) percurrent, sinuous, higher order veins reticulate.
- **cuticle:**
  both surfaces delicate, rarely preserved, hypostonatic; **adaxial cuticle:** anticlines almost straight, cell outlines polygonal, about 20 µm across; trichome bases made of radially oriented trichome base cells surrounding the trichome pore, priorily present on veins; **abaxial cuticle:** surface showing epicuticular wrinkles and next to stomata striation perpendicular to the longitudinal axis of the stomata, anticlines not always visible; stomatal complexes paracytic (?), differently sized, subsidiary cells not well visible, stomatal ledges forming a narrow spindle-shaped front cavity of 8–20 µm length; trichome bases above veins more common than in intercostal areas, trichome pore 4–9 µm in diameter, poral rim a bit thickened, surrounded by radiating trichome base cells.

Palecology

- **habitat:** mainly in alluvial forests
- **vegetation type:** mixed mesophytic and primarily in broad-leaved deciduous forests
- **life form:** tree
- **foliage persistence:** deciduous leaves
- **flower ecology (pollination):** ?
- **fruit ecology (dispersal):** wind-dispersed (anemochorous)

Stratigraphy / Distribution

- **stratigraphy:** Upper Oligocene to Lower Pliocene
- **distribution:** Western Siberia (Upper Oligocene), widely distributed in Europe during the Miocene unto the Lower Pliocene.

Miscellaneous

- **synonyms:** *Populus latior* A. BRAUN
- **modern relationship:** Sect. Leuce; the foliage resembles *P. tremula* L. and also *P. alba* L.

- **remarks:** These leaves differ from *P. balsamoides* by the rather coarse dentation with somewhat bigger and hook-shaped teeth, less wide and usually somewhat smaller leaves. It may be very abundant especially in late middle and late Miocene plant assemblages in Europe.

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28 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-3.7	leaf shape: other
5	A-4.3	leaf base angle: reflex
6	A-5.1	leaf base shape: without basal extension
7	A-5.1.3	leaf base shape, without basal extension: truncate
8	A-5.2	leaf base shape: with basal extension
9	A-5.2.1	leaf base shape, with basal extension: cordate
10	A-6.2	leaf apex angle: obtuse
11	A-7.2	leaf apex shape: acuminate
12	A-8.2	leaf margin: toothed
13	A-8.2.2	leaf margin, toothed: dentate
14	A-9.1.1	leaf teeth, order number of teeth: simple order (first order)
15	A-9.2.1	leaf teeth, tooth density: dense
16	A-9.2.2	leaf teeth, tooth density: not dense
17	A-9.3.1	leaf teeth, tooth size: small
18	A-9.4.1	leaf teeth, tooth apex shape: acute
19	A-9.5.2	leaf teeth, tooth sinus shape: rounded
20	B-1.2	primary vein framework: palmate
21	B-1.2.1	primary vein framework, palmate: actinodromous
22	B-1.2.1.1	primary vein framework, palmate, actinodromous: basal actinodromous
23	B-2.1	secondary vein framework: 2° veins reach margin
24	B-2.1.1	secondary vein framework, 2° veins reach margin: craspedodromous
25	B-3.2	intramarginal vein: absent
26	B-4.1	intersecondaries: present
27	B-5.1	tertiary vein framework: percurrent
28	B-5.1.1	tertiary vein framework, percurrent: opposite

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

? microscopic leaf traits are stored in *Digiphyll*

comming soon

Fossil images

References

- **Budantsev L. (ed.) (2005):** Fossil flowering plants of Russia and adjacent countries. Vol. 4, Nyctaginaceae-Salicaceae. – *Rossijskaja Akademia Nauk*, St. Petersburg. 184 p.
- **Ferguson D.K. (1971):** The Miocene flora of Kreuzau, Western Germany. – *Verhandelingen der Koninklijke Nederlandse Akademie van Wetenschappen*, Afd. Natuurkunde, 60(1): 1-297.
- **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. & Kvaček Z. (1976):** Miozäne Blätterfloren vom Westrand der Böhmischen Masse. – *Rozpravy Ústředniho ústavu geologického*, 42: 5-129.
- **Kovar-Eder J. (1988):** Obermiozäne (Pannone) Floren aus der Molassezone Österreichs. – *Beiträge zur Paläontologie von Österreich*, 14: 19-121.

- **Worobiec G., Worobiec E. & Kasiński J. (2008):** Plant assemblages of the drill cores from the Neogene Ruja lignite deposit near Legnica (Lower Silesia, Poland). – *Acta Palaeobotanica*, 48/2: 191-275.

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