

(1529) Proposal to conserve the name *Cupressinoxylon* against *Retinodendron* (fossil *Gymnospermae*, *Coniferales*), with a conserved type

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(1529) *Cupressinoxylon* Göpp. in *Natuurk. Verh. Hollandsche Maatsch. Wetensch. Haarlem*, ser. 2, 6: 196. 1850 (med.) [*Coniferales*], *nom. cons. prop.*

Type: *Cupressinoxylon gothanii* Kräusel (in *Jahrb. Preuss. Geol. Landesanst.* 39: 436. 1920), *typ. cons. prop.*

(=) *Retinodendron* Zenker, *Beitr. Naturgesch. Urwelt*: 2. 1833 [*Coniferales*], *nom. rej. prop.*
Type: *R. pityoides* Zenker.

The name *Cupressinoxylon* was introduced by Göppert who included the type of *Retinodendron* Zenker (Göppert, l.c.: 199). *Cupressinoxylon* is thus illegitimate under Art. 52.1 and 52.2 of the ICBN (Greuter & al., *Regnum Veg.* 138. 2000) as a superfluous renaming. *Retinodendron* is based on *R. pityoides* Zenker, a species that was established on unidentifiable material as Göppert (l.c.: 199) and Kräusel (*Palaeontographica* 62: 238. 1919) already stated. It is precisely because of its poorly preserved type that Göppert (l.c.) choose not to use *Retinodendron*.

As already pointed out by Vaudois & Privé (*Palaeontographica*, Abt. B, *Paläophytol.* 134: 61–86. 1971), *Cupressinoxylon* has an intricate story. A similar name, *Cupressoxylon* Kraus (in Schimper, *Traité Paléontol. Vég.* 2: 374. 1870) has been considered either as an orthographic variant, e.g., by Saporta (*Paléontol. Franç., Pl. Jurass.* 3: 641. 1884) and by Knowlton (*Proc. U.S. Natl. Mus.* 11: 6. 1888); as a later nomenclatural synonym, e.g., by Seward (*Foss. Pl.* 4: 186. 1919); or as the name of a distinct genus, e.g., by Gothan (*Abh. Königl. Preuss. Geol. Landesanst.* 44: 7. 1905) and by Kräusel (l.c.: 197–206. 1919). As only one nomenclatural type is involved (vide Kraus l.c.: 374), under the present Code it must be treated as an orthographic variant (Art. 61.2). As the woods of *Cupressaceae*, *Taxodiaceae* and *Podocarpaceae* are sometimes difficult or even impossible to distinguish, etymological inferences have

been used in various and contradictory ways (Prill & Kräusel in *Jahrb. Preuss. Geol. Landesanst.* 38: 205–213. 1920).

There is a long tradition to use *Cupressinoxylon* in a broad sense, i.e., for a genus comprising all woods of *Cupressaceae* type (e.g., by Kräusel, l.c. 11919, Torrey in *Mem. Boston Soc. Nat. Hist.* 6: 94. 1923 and Sahni in *Palaeontol. Indica* 11: 66. 1931). On the other hand, several present-day workers adopt it in a restricted sense, i.e., for a genus comprising only those woods of *Cupressaceae* type which cannot be assigned to a more precise fossil genus (Vaudois & Privé, l.c.: 82). ICBN rules have never been strictly applied to the case of this generic name, as is illustrated by Müller-Stoll & Schultze-Motel (*Z. Deutsch. Geol. Ges.* 141: 66–67. 1990). They ascribe *Cupressinoxylon* to ‘Schenk 1890’ because the oldest species described in *Cupressinoxylon* that they accept is from that publication.

In spite of the fact that there have been these disputes surrounding *Cupressinoxylon*, this name has been commonly used for the last 50 years with the diagnosis given by Kräusel (l.c.: 150, 151, 174. 1919), for example by Radforth (*Trans. Roy. Soc. Canada, Sect. 5, Biol. Sci.* 52(5): 48–50. 1958), Greguss (*Foss. Gymn. Woods Hungary*: 59. 1967), Barale (*Doc. Lab. Geol. Univ. Lyon* 81: 208. 1981), Desplats (in Alvarez-Ramis & al., *Cretaceous Res.* 2: 341. 1981), Gottwald (*Palaeontographica*, Abt. B, *Paläophytol.* 179: 138–151. 1981), Zhang Shan-Zhen & Cao Zheng-Yao (*Acta Palaeobot. Palynol. Sin.* 8(1): 23. 1986), Rajanikanth & Sukh-Dev (*Geophytology* 19: 52–64. 1989), Shilkina (*Voprosi Paleoflorist. Stratigr.*: 89. 1989), Müller-Stoll & Schultze-Motel (*Z. Deutsch. Geol. Ges.* 141: 66. 1990), Philippe (*Palaeontographica*, Abt. B, *Paläophytol.* 236: 67. 1995), Yadav & Bhattacharyya (*Palaeobotanist* 45: 60–61. 1996), Zhang Wu & Shang Ping (*Palaeobotanist* 45: 389. 1996) and Morgans (*Palaeontology* 42(2) : 308. 1999).

Dozens of species have been described under this generic name and are widely used, even by authors who

have a narrow concept of the genus, as, for example, Vaudois & Privé (l.c.: 63. 1971).

Retinodendron, on the other hand, has not been used for more than a century. No species has ever been added after Zenker's original description, and the generic name is only occasionally found cited as an old synonym. Strict application of ICBN rules (i.e., switching to *Retinodendron*) would imply the making of tens of new combinations and would be very disruptive for nomenclatural stability. As *Cupressinoxylon* is widely used, conservation of the name would confirm more than a century of usage.

As the material that typifies Zenker's name does not have preserved anatomical features, it is not appropriate as a type. In the original publication of *Cupressinoxylon*, Göppert (l.c.: 198) included 16 species through which a type might be selected. Although *Cupressinoxylon* is automatically typified by *R. pityoides* under Art. 7.5 of the current Code, there was a formal lectotypification of the name by Andrews (in Bull. U.S. Geol. Surv. 1013: 139. 1955) who choose *C. subaequale* Göpp. because this is the first species that was adequately illustrated. This is based on a specimen referred by Kräusel (l.c.: 203. 1919) to *Taxodioxyton sequoianum* (Merckl.) Schmalh. on the basis of its anatomy. Although the nomenclatural type is not necessarily the most typical or representative element of a taxon (Art. 7.2), and although Göppert's diagnosis is too imprecise to be in serious conflict with Andrew's choice (Art. 9.17), we think a conserved type fitting the use established since the fundamental work by Kräusel (l.c.: 83–203. 1919) is to be preferred.

We considered whether *Cupressinoxylon sabinianum*, suggested as type by Müller-Stoll & Schultze-Motel (l.c.: 66) would provide a good type. It would not, because the original material is poor: "nicht mit Sicherheit bestimmt werden kann, da der Bau der Markstrahlen unklar bleibt" (Kräusel, l.c.: 212. 1919). We propose to select *C. gothanii* Kräusel as type, as the wood upon which it is based has well-preserved anatomical features (Vaudois & Privé, l.c.: 72), and as this type is not only appropriate for those with a broad generic concept, but well acceptable to those, like ourselves, who have a narrow concept of the genus.