SUPPLEMENTARY ONLINE MATERIAL FOR

New records of Upper Triassic wood from Argentina and their biostratigraphic, paleoclimatic, and paleoecological implications

Laura Vallejos Leiz, Alexandra Crisafulli, and Silvia Gnaedinger

Published in Acta Palaeontologica Polonica 2022 67 (X): xxx-xxx. https://doi.org/10.4202/app.00939.2021

Supplementary Online Material

**SOM Table 1.** Comparison of the anatomical characters of the secondary xylem of *Baieroxylon* species

**SOM Table 2.** Comparison of the anatomical characters of related Triassic species of *Protophyllocladoxylon hilarioense* sp. nov.

**SOM Table 3.** Comparison of the anatomical characters of South American species of *Protophyllocladoxylon.*

References
**SOM Table 1.** Comparison of the anatomical characters of the secondary xylem of *Baieroxylon* species. AP= axial parenchyma, HT= helicoidal thickenings, A= absent, P= present, r= rare, d= diffuse. Modified from Gnaedinger (2012).

| Taxon | Age and country | Pith | Secondary xylem | Xylem rays |
|-------|----------------|------|-----------------|------------|
|       |                |      | Tracheid radial pitting | AP | HT | Cross-field pits | Seriation | Height |
|       |                |      |                  |       |     |                  | Seriation | Height |
| *Baieroxylon multiseriale* Prasad, 1982 | late Permian India | A | 1–4 seriate, circular and hexagonal, alternate, opposite, contiguous and separate | A | P | 1–15 circular and oval to simple | 1 seriate | 1–15 |
| *B. cicatricum* Prasad and Lele in Crisafulli, 2001 | late Permian Uruguay | | 1–2 seriate, alternate, opposite, contiguous and separate | A | p | Mean 4 | 1 seriate | 3–12 |
| *B. cicatricum* Prasad and Lele in Crisafulli and Herbst, 2009 | late Permian Paraguay | | 1–2 seriate, alternate, opposite, contiguous and separate | A | p | Mean 4 | 1 seriate | 3–12 |
| *B. implexum* Greguss, 1961 | Late Triassic, Germany, Permian, Hungary | A | 1–3 seriate, contiguous | r | p | 1–4 elliptical, simple | 1 seriate | 1–8 |
| *B. chilensis* Torres and Philippe in Crisafulli and Herbst, 2010 | Late Triassic, Argentina | A | 1 seriate, contiguous, some separate, rarely biserial alternate | P | P | Cupressoid, 1–4 | 1 seriate | 1–13 |
| *B. cicatricum* Prasad and Lele, 1984 | Late Triassic, India | A | 1–3 seriate alternate-opposite, contiguous and separate | A | P | Up to 9 | 1 seriate | 1–10 |
| *B. cicatricum* Prasad and Lele in Bardola et al., 2009 | Late Triassic, Brazil | A | 1–2 seriate, alternate, contiguous and separate, mixed type | A | P | Up to 5 arranged in crowns | 1 seriate | 1–14 |
| *B. cicatricum* Prasad and Lele, {year?} (Vallejos Leiz et al. 2021) | Upper Triassic, Argentina | A | 1–2 seriate, alternate, contiguous and separate, mixed type | A | P | Up to 5 arranged in crowns | 1 seriate | 2–12 |
| *B. graminovillae* (Zimmermann {year}) Prasad and Lele, 1984 | Late Triassic, Germany | A | 1–2 seriate, rarely 3 seriate, araucarioid type | A | P | 1–4 oval, simple | 1 seriate | 1–15 |
| *B. cambogdiense* Serra, 1966a | Mesozoic, Asia | A | 1–2 seriate, opposite, alternate, with crassulae | A | A | 4–19 arranged in crowns | 1–2 seriate | 4–19 |
| *B. chilense* Torres and Philippe, 2002 | Early Jurassic Chile | A | 1–2 seriate, contiguous or separate, sometimes alternate | P | A | 1–2 | 1 seriate, some locally 2 seriate | 1–7(–15) |
|                | Age          | Location                          | Arrangement       | Number of Pits | Other Characteristics                                                                 |
|----------------|--------------|-----------------------------------|-------------------|----------------|--------------------------------------------------------------------------------------|
| **B. sp. cf. B. chilense**<br>Torres and Philippe in Gnaedinger and Herbst, 2009 | Early Jurassic<br>Argentina | A 1–2 seriate, contiguous or separate, alternate or opposite | A A 1–2 | 1–2 seriate, some locally 2 seriate | 2–6 |
| **B. lindicianum** Philippe, 1995 (Philippe and Barbacka 1997) | Early Jurassic,<br>France and Hungary | A 1–2 seriate, alternate- subopposite | A A 4–7 oval | 1–2 seriate | — |
| **B. rocablanquense**<br>Gnaedinger, 2012 | Early Jurassic<br>Argentina | A 1 seriate, contiguous and separate | A P 1–6 circular cupressoid pits, in horizontal rows, sometimes 8 arranged in groups or crowns. | 1 seriate | 2–8 |
| **B. cicatricum**<br>Prasad and Lele in Rao and Ramanujan, 1986 | Cretaceous<br>India | A 1–2 seriate, alternate, opposite, contiguous and separate, occasionally 3 seriate, alternate | d A 1–8 simple pits, elliptic or oval and oblique | 1 seriate | 1–11 |
### SOM Table 2. Comparison of the anatomical characters of related Triassic species of *Protophyllocladoxylon hilarioense* sp. nov.

AP= axial parenchyma, GR= growth rings, T= tylosis, A= absent, P= present, ?= uncertain, n.o= not observed, ab= abundant, r= rare.

| Taxon                                      | Age and country                  | GR | AP | T | Radial pits                                                                 | Tangential pits | Cross-field pits                                                                 | Xylem rays        |
|--------------------------------------------|----------------------------------|----|----|---|------------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------|------------------|
| *Protophyllocladoxylon zhaobishanensis*   | Zhaobishan, Shanshan, Turpan, Xinjiang, China | P  | A  | P | 1–2– seriate, rarely 3 seriate; rounded to polygonal rarely flattened in outline, with circular apertures, uniseriate contiguous rarely arranged in groups. Multiseriate pits contiguously and alternatively arranged. | 1–2 seriate     | 1–2; window-like, sometimes circular, oval simple pits                         | 1 seriate         |
| *P. xenoxyloides*                         | Phnom-Ker, Cambodia              | A  | P  | P | 1–2 seriate; alternate, rarely opposite, flattened, elliptic or circular       | n.o.            | 1 occasionally 2; oval to circular horizontal                                   | 1–12             |
| *P. thylloides*                           | Ho-Hom, Quang-Nam, Vietnam       | P  | ?  | ab | 1–2 seriate; uniseriate flattened; biseriate, alternate, rarely opposite, contiguous or separate, hexagonal               | n.o.            | 1–2; elliptic, oblique to almost vertical, rarely horizontal                   | 1 seriate, rarely 2 seriate |
| *P. lechangense*                          | South China                      | A  | A  | A | 1–3, rarely 4 seriate; 2–3 seriate in earlywood, alternate, hexagonal, uniseriate in latewood, contiguus, subcircular     | r              | 1–2; rectangular with rounded angles or elliptic, horizontal                   | 1 seriate         |
| *P. korubaense*                           | Rovieng, Kompong Thom, Cambodia  | A  | P  | P | 1–2 seriate; uniseriate, contiguous or separate circular; biseriate, alternate, rarely opposite                        | r              | 1–2; oval to circular                                                         | 1–2 seriate       |
| *P. parathylloides*                       | Quang-Nam, Vietnam               | A  | ?  | ab | 1–2 seriate; Araucarian, with a mixed tendency                               | n.o.            | 1–2; small more or less oval, obliquely disposed, sometimes with a vertical tendency | 1-2 seriate  |
| *P. szei*                                 | Guangdong, Mongolia              | A  | A  | A | 1 seriate; contiguous or sometime separate, circular or sometimes flattened   | n.o.            | 1; large, circular, broadly oval or elliptic, vertical or oblique              | 1 seriate         |
| *P. hilarioense*                          | Hilario, San Juan, Argentina    | P  | A  | A | 1–2 seriate; uniseriate, contiguous to flattened, sometimes separate with abietinoid tendency circular; biseriate, subopposite, contiguous and flattened, rarely separate circular | 1, rarely 2 seriate | 1–2; elliptic, oblique, rarely horizontal                                       | 1 seriate; partly 2 seriate |

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**SOM Table 3.** Comparison of the anatomical characters of South American species of *Protophyllolcadoxylon.*

AP = axial parenchyma, GR = growth rings, A = absent, P = present, n.o = not observed, r = rare.

| Taxon | Locality and country | Age | Secondary xylem | Xylem rays |
|-------|----------------------|-----|-----------------|------------|
|       |                      |     | GR | AP | Radial pits | Tangential pits | Cross-field pits | Seriation | Height |
|-------|----------------------|-----|-----|-----|-------------|-----------------|------------------|-----------|--------|
| *P. dolianitii*<sup> Mussa, 1958</sup> | Brazil | late Carboniferous (Mississippian) | A | A | 1–3 seriate; alternate and polygonal | n.o. | 1–2, horizontal or oblique | 1 seriate | 1–30 |
| *P. derby*<sup> (Oliveira {year}) Maheshwari, 1972</sup> | Brazil | late Carboniferous (Pennsylvanian) | P | A | 1 seriate; oblique and oval | r | 1–2 | 1 seriate; partly 2 seriate | 1–47 |
| *P. rosablancaense*<sup> Pons, 1971</sup> | Colombia | Early Cretaceous | A | A | 1–2 seriate; uniseriate, contiguous, flattened, rarely circular; biseriate, alternate, flattened | n.o. | 1–2, elliptic, oblique, rarely horizontal | 1-2 seriate | 1–20 |
| *P. hilarioense*<sup> (Vallejos Leiz et al. 2021)</sup> | Argentina | Upper Triassic | P | A | 1–2 seriate; uniseriate, contiguous to flattened, sometimes separate with abietinoid tendency, circular; biseriate, subopposite, contiguous and flattened, rarely separate, circular | 1, rarely 2 seriate | 1–2; elliptic, oblique, rarely horizontal | 1 seriate; partly 2 seriate | 1–10 |
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