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## Plant diversity after the Devonian-Carboniferous boundary: new data from the Tournaisian of Montagne Noire, France.

Anne-Laure DECOMBEIX<sup>1</sup>, Brigitte MEYER-BERTHAUD<sup>1</sup>, Maddalena PASSELERGUE<sup>1</sup>, Aixa TOSAL<sup>2</sup>, Catherine GIRARD<sup>3</sup>.

1. UMR AMAP, Univ. Montpellier, CNRS, CIRAD, INRA, IRD, Montpellier, France ([anne-laure.decombeix@cirad.fr](mailto:anne-laure.decombeix@cirad.fr); [meyerberthaud@cirad.fr](mailto:meyerberthaud@cirad.fr); [maddalena.passelergue@etu.umontpellier.fr](mailto:maddalena.passelergue@etu.umontpellier.fr))
2. Departament de Dinàmica de la Terra i de l'Oceà, Facultat de Ciències de la Terra, Institut de Recerca de la Biodiversitat (IRBio), Universitat de Barcelona-UB, 08028 Barcelona, Catalonia, Spain ([aixatosal@gmail.com](mailto:aixatosal@gmail.com))
3. UMR ISEM, Univ Montpellier, CNRS, EPHE, IRD, Montpellier, France ([catherine.girard@umontpellier.fr](mailto:catherine.girard@umontpellier.fr))

The Devonian-Carboniferous boundary (359 Ma) is now recognized as a period of major environmental changes, affecting both marine and terrestrial ecosystems. However, the impact of this event on plants remains controversial, notably because of the scarcity of macrofloral data in the earliest Carboniferous. In this context, we are currently focusing on the diversity and biology of fossil plants from the Tournaisian Lydienne Formation in the Montagne Noire, Southern France (Galtier et al. 1988).

A first source of information is the (re)investigation of specimens kept in the Université de Montpellier collections. This allows us to better understand plant systematic and functional diversity, and to compare the assemblage to Late Devonian floras from around the world. We will present some recent work on two key anatomically preserved taxa: (1) *Cladoxylon*, the youngest representative of the cladoxyloids and the only one to date in which the production of periderm is documented (Decombeix & Galtier, 2021; Fig 1a), (2) large bisporangiate lycopsid cones originally described as *Lepidostrobus* (Zeiller, 1911; Böhm, 1935; Genson, 1941; Fig 1b)

In addition to collection material, new trenches cutting through the Lydienne Formation at the locality of La Serre (Fig 1c) have allowed us to collect new specimens, mostly preserved as adpressions. Although most of them are very fragmentary (1-2 cm), they are important as they provide crucial information on small structures that are less represented in the anatomically preserved material, such as seeds and foliage.

In the coming years, the combination of paleobotanical studies in the Montagne Noire with work conducted in parallel on the vertebrate fossil record is expected to provide a better insight on ecosystem recovery patterns following the D-C boundary.

### References

- Böhm, R., 1935. Etude sur la flore de l'horizon à lydiennes de la base du Carbonifère de la Montagne Noire. - 2ème thèse, Impr. de la Charité [ed.], Montpellier, France.
- Decombeix, A-L., Galtier, J., 2021. Periderm production in the Mississippian cladoxylopid *Cladoxylon taeniatum* and a review of periderm occurrence in Paleozoic plants. *International Journal of Plant Sciences* 182, 430-444
- Galtier, J., Meyer-Berthaud, B., Rowe, N.P., 1988. Tournaisian plants from the “Lydienne” Formation of the Montagne Noire (France). *Courier Forschungsinstitut Senckenberg*, 100, 109-117.

Genson, E., 1941. Nouvelles découvertes dans l'horizon à Lydiennes de la base du Carbonifère de la région de Concou. Imprimé par l'auteur, Béziers, France.

Zeiller, R., 1911. Etude sur le *Lepidostrobus Brownii* (Unger) Schimper. *Mémoires de l'Académie des Sciences*, 52, 1-67

Figure 1.

