



Camille SALMON est une doctorante de l'Université de Montpellier à l'UMR-AMAP, encadrée par Patrick HEURET et Sandrine ISNARD. Elle travaille sur les trajectoires de développement des arbres monocarpiques - qui fleurissent une unique fois puis meurt - et questionne l'émergence de cette stratégie dite 'suicidaire' au sein du genre *Cerberiopsis* (Apocynaceae) endémique de Nouvelle Calédonie.

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Amphithéâtre Jacques Alliot
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SOUTENANCE DE THESE

Developmental trajectories and Ecology of Monocarpic Trees: Insights from the genus *Cerberiopsis* (Apocynaceae)

Présenté par

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RESUME

Semelparity is the ability of an organism to reproduce once and then die. In plants, this life history strategy is also named monocarpy. After a unique flowering event, the whole plant dies. This strategy inherently characterizes annual and biennial herbaceous, and frequently occurs in bamboo and palms, but remains extremely rare in woody branched plants such as shrubs and trees. Branched plants are long-lived organisms and present multiple meristems (growing points) that are as many opportunities to flower at different times. Therefore, the persistence of the monocarpic strategy in such plants is questionable since a premature death of the individual in the decades before the flowering will prevent any descendants. About twenty-nine monocarpic canopy tree species are recorded worldwide all included in two tropical and subtropical genera: *Tachigali* (Fabaceae) and *Cerberiopsis* (Apocynaceae). This latter is endemic to New Caledonia and consists of three species with different habits. While *C. neriifolia* and *C. obtusifolia* are respectively a polycarpic (multi-flowering) treelet and shrub, *C. candelabra* is a large monocarpic rainforest tree. In this thesis, we investigate the morpho-anatomical bases of monocarpy, its underlying ecological implications, and functional adaptations. (1) Through a comparative analysis, we highlight that the variation of only a few architectural traits has led to the emergence of this strategy within the genus *Cerberiopsis*, (2) Based on growth monitoring, we show that *C. candelabra* exhibits high survival and growth rates at the juvenile stage. These two studies pave the way to (3) an integrative retrospective analysis: we reconstruct the developmental trajectories of the *Cerberiopsis* species and demonstrate that their growth phenology is sensitive to climate seasonality. *C. candelabra* exhibits strong structural and temporal regularities, as well as a high degree of synchronization between all developmental processes. These particularities might have been preconditions for the evolution of its monocarpic strategy. Finally, my work introduces (4) a new type of annual growth ring that results from the production of circular tension wood, a potential adaptive feature related to the cyclonic season of New Caledonia.

Type:

Soutenance de Thèse

Langue

français

Langu du PPT:

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