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The early vascular development of mangrove propagules

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Many mangrove species are viviparous, *i.e.* their seeds (generally propagules) germinate while still attached to the parent tree. After abscission from the parent tree at maturity, the propagules either establish and colonize the substrate locally in the direct vicinity of the parent tree, or they disperse by water, possibly colonizing distant areas. In both cases, the vascular system is crucial for propagule and seedling establishment and survival in the mangrove ecosystem. However, the early development of the vascular system in mangrove trees remains largely unknown. We studied the early stages of vascular development of mangrove propagules of a number of characteristic species.

Our experimental set-up consists in growing mangrove propagules under greenhouse conditions, thus having them develop into mangrove seedlings. During the period of vascular development, the plants are followed in time *in vivo* through CT-scanning and MRI-scanning. Furthermore, the vascular tissue is studied after harvesting through micro-CT-scanning and wood anatomy measurements. This set-up allows us to investigate the early vascular development of different mangrove species through time upon establishment in the soil.

The vascular system is crucial in overall tree survival, but must be different between mangrove propagules and terrestrial tree species as well as amongst mangrove species during the early and critical stages of development. Indeed, propagules have very different structures and dimensions and species establish in different zones of the land-sea ecotone, a range of traits which we try to understand as adaptations to a highly demanding environment.