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Architecture and growth modelling of savannah agroforestry species native to Côte d'Ivoire

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Reforestation and agroforestry are the two options favoured by Côte d'Ivoire to restore its forest area and conserve its wood resources. *Khaya senegalensis*, *Pterocarpus erinaceus* and *Parkia biglobosa* are three indigenous savannah forest species with multiple uses. The heavy exploitation of these species exposes them to a loss of diversity that could lead to their eventual extinction. Integrating them into agroforestry programmes is a solution for their conservation and sustainable use. This study is being conducted with the aim of optimising the cultivation of these three species and promoting their agroforestry potential. Architectural analysis (development sequence and morphology of growth units/module) from seedlings to old trees will be carried out. The work will take place along a South-North drought gradient in Côte d'Ivoire in order to understand and determine the intra-specific architectural variability. In a second step, a retrospective analysis of growth will allow the past growth of the trees to be traced using morphological markers left behind by growth stoppages due to dry seasons. In this way, the architectural diagram of each of these species will be established. Finally, organ measurements captured in Multiscale Trees Graph format and analysis of the tops of the three species will be carried out at different ages in the nursery. These measurements will be used to model the growth and development of the target species using the GreenLab structure-function model. Hidden parameters such as organ source-sink relationships, leaf resistance, common pool and production area will be obtained. These data will guide the choice of progeny or plants for planting, the ideal planting density, the itinerary and cultivation management of these three species.

Keywords: Côte d'Ivoire, *Khaya senegalensis*, *Pterocarpus erinaceus* et *Parkia biglobosa*, Architecture, modelling.