

## Research in Progress

1. Restoration and rehabilitation of the watershed ecosystem of Awba Dam, University of Ibadan, Nigeria.

This is a long term research project which commenced in 2021. The first phase of the project is evaluating the survival rate, early growth characteristics and development of ten indigenous and two exotic hardwood species, established in mono and mixed plantations. A management plan is being developed for the site, while the different stages of recovery are being monitored with aerial photographs from an unmanned aerial vehicle (drone). The cost of maintenance, and socioeconomic benefits of the rehabilitation project are being assessed. The second phase will involve the introduction of thinning and pruning experiments; to ascertain the suitability of indigenous species for plantation establishment. The monitoring of the biological diversity, edaphic conditions and water quality of the watershed are also in progress. The first and second phases are scheduled to run for 10 years. It is expected that the ecological and socioeconomic conditions of the site would improve, while the ecosystem will become a living laboratory for training and building students' capacity. In addition the study will provide empirical data on the growth and development of tropical tree species, under plantation conditions.

2. Phenology and germplasm variation of *Gambeya albida* (G. Don.) Aubrév & Pellegr.

The research is assessing the phenology and genetic variation of *Gambeya albida* in Southwestern Nigeria. The study commenced in 2018 and is documenting essential information required for domestication and mass propagation of the tree species. It is monitoring the flowering and fruiting patterns as well as determining the morphological variation among fruits of trees from selected locations. The insect ecology of the species is being determined and visiting pollinators are being identified. The study is developing seed handling techniques and evaluating conditions suitable for early seedling growth and development. Protocols for vegetative propagation of stem cuttings are undergoing evaluation. Universal markers are being assessed for possible determination of the genetic variation among *Gambeya albida* populations from different locations in Southwestern Nigeria. The study is expected to be concluded in 2025.

3. Tree species diversity and ecosystem services from green spaces in Ilorin Metropolis, Kwara State, Nigeria.

The research is assessing the distribution of trees and the ecosystem services they provide in an urban ecosystem. It is highlighting the ecological role and socioeconomic benefits of trees in a city. The carbon stock of resident trees and their suitability for amenity planting are being evaluated. The green spaces are being assessed based on their provisioning, regulating, cultural and supporting services. In addition, the local perception of citizens towards tree species is being documented. This study is expected to be concluded in 2024.

4. Allelopathic effects of leaf leachates of *Leucaena leucocephala* (Lam.) De Wit and *Elaeis guineensis* Jacq. on the germination, growth and yield of maize.

The study is assessing the allelopathic characteristics of leachates extracted from the foliage of *Leucaena leucocephala* and *Elaeis guineensis*. It is determining their influence on germination, growth and yield of maize. It aims to establish their suitability as agroforestry tree species in maize production. The phytochemical constituents of the leaf leachates from the two species are being identified and quantified. The ability of the two species to support weed control are also being determined. This study is expected to be concluded in 2023.