RESEARCH FOCUS

My research focus is in the area of Plant and Weed Ecology with emphasis on floristic analyses, diversity and conservation of vegetation, management and utilization of weeds: human impacts on vegetation and bioremediation measures for the restoration of degraded vegetation.

The studies on floristics, diversity and conservation of vegetation reported valuable species from the remnants of degraded rainforests in the South-west and mangrove in the South-south of Nigeria especially species that are useful for timber and ethnobotanical purposes. The study revealed conclusively that Markovian replacement predictions cannot be satisfactorily used to predict succession in degraded vegetation due to the regrowth of shrub species. Further studies reported the morphology and ecology of the genus *Synsepalum* represented by three species in Nigeria out of which *S. stipulatum* is on red list. The remaining two species are still found in Nigerian rainforest and are economically important species. One of the species *S. dulcificum* is best known for the production of miraculin, a sweetener and *S. glycydora* is vulnerable and found only in rainforest of the South-east, Nigeria. These species were thus recommended for *in situ* and *ex situ* conservation for sustainable utilization.

The studies of human impact on vegetation reported plant biodiversity loss. The logging and commercial farming activities in Tunu/Kanbo forests of Niger Delta have resulted in the degradation of the mangrove forest of the area. The occurrence of two invasive species – *Tithonia diversifolia* on farmlands and *Echhornia crassipes* in water bodies were reported. These studies showed the usefulness of *T. diversifolia* in improving soil health, and raw material for pulp and paper making industries; and *E. crassipes* in soil fertility restoration. The studies therefore advocated for appropriate management and utilization of these two species for the sustainability of the ecosystem.

My studies on bioremediation to improve the ecosystem showed that degradation of low concentration of polycyclic aromatic hydrocarbon can be achieved by bioaugmentation with microbial consortium made up of five fungi and three bacteria species. The search for plant bio-indicator of heavy metals showed that *Carica papaya* tree bark was effective for the assessment of heavy metal pollution in urban centres. The ability of *Telferia occidentalis* to bioaccumulate heavy metals when grown in dumpsite soils showed that it is a good candidate for the removal of heavy metals in dumpsites but with consequences on human health who cherish the vegetable as a delicacy and supplement for iron in diet.

My studies have impacted on plant biodiversity management, soil fertility restoration, pollution monitoring and management.