

**Extension Phase of Senior Fellowship for Dr. Herve Bertin Bisseleua Daghela:
"Biological control of soil-dwelling pests in traditional cacao agroforests of
Cameroon using encapsulated CO₂ associated with endophytic fungi"**

Initiative: Wissen für morgen – Kooperative Forschungsvorhaben im subsaharischen Afrika (beendet)

Ausschreibung: Postdoctoral Fellowships "Resources, their Dynamics and Sustainability - Capacity-

Development in Comparative and Integrated Approaches"

Bewilligung: 26.06.2018

Laufzeit: 2 Jahre

We aim to finalize the taxonomy and bio-ecology of key termite species identified as main pests of cocoa trees in the previous phase of the project; generate new formulations and exploring synergistic actions of biological control agents (BCAs) based on entomopathogenic fungi and nematodes within integrated pest management strategies of subterranean crops pests (e.g. termites) using the attract and kill approach. Our general hypothesis is that the effects of farm management on natives and non-native species and the structure and function of native communities will drive ecosystem dynamic and changes. We are building on this hypothesis to develop new formulations and exploring synergistic actions of biocontrol products and to improve, adapt and validate new biopesticide products into low-cost technologies for management of soil pests, and biosafety assessment on the environment and the food chain. For the component of taxonomy and functional diversity we hypothesized that (1) proper identification of termite species and knowledge on their functional diversity are the first steps in developing environmentally compatible management strategies; (2) Proper shade tree management and diversity will impact soil fertility resulting in reducing recurrent outbreaks of termites in cocoa agroforestry systems; (3) climate change and variability will affect the diversity of soil dwelling arthropods as a result of immigration and emigration. The work on screening and development of new formulation will be guided by the following hypotheses (1) the current outbreak of termite species as pests is due the removal of shade cover in the cocoa agroforestry systems (2) the reduction of shade cover is also leading to the reduction of natural enemies of termites such as entomopathogenic fungi (EPF) and (3) The formulation and release of best candidate EPFs isolates will contribute to limit termites outbreaks even under low shade conditions.

Projektbeteiligte

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Open Access-Publikationen

Dispersion patterns and monitoring samplings of termite pests in cocoa agroforestry systems of Southern Cameroon

Effect of shade on the diversity of termites (Isoptera) in different cocoa agroforestry systems in the Nawa region (Côte d'Ivoire)