

**Project title:** Promoting biopesticides: a sustainable pest control strategy for climate change adaptation

**Funding agency:** South Africa National Research Foundation (DSI/NRF Innovation Post-doctoral fellowship)

**Project budget:** ZAR 320,000

**Duration:** 2 years (2021-2022)

### **Project description**

Climate change is projected to increase the prevalence of pests and diseases and facilitate the spread of invasive species. Previous studies show that the rise in temperature and change in rainfall patterns directly affect the distribution, development, and population of insect pests. The common response for most farmers, as evidenced by the recent locust invasion in East Africa and fall armyworm in Africa, is the increased frequency of application, dose or type of synthetic chemical pesticides applied – some of which, if not properly used, could have harmful effects on the users, the environment, biodiversity and eventually the consumers. The burden of chemical pesticides, in terms of costs and health risk exposure, is mostly borne by resource-limited smallholder farmers who comprise approximately 70% of the population in sub-Saharan Africa (SSA). An innovative approach to adapting to the projected climate change effects and simultaneously cope with potential adverse effects of some synthetic chemical pesticides burden may depend on the incorporation of biopesticides into the integrated pest management programs.

Biopesticides are pest control products obtained from natural materials such as animals, plants, bacteria, and certain minerals. They are generally safer pest control options and could go a long way in promoting ecological agriculture, a biodiversity-based farming system that entails among others, integrating natural processes, minimising non-renewable inputs, tapping farmer skills and adaptation to local conditions which are greatly beneficial to smallholder farmers. Although many biopesticide-active substances have been identified and isolated over the years, very few have been developed or registered for commercial adoption in SSA. This has mostly been attributed to stringent regulatory processes and policy barriers.

This research project, which is being conducted by Dr. Elizabeth Njuguna seeks to determine specific regulatory and policy barriers to the adoption of biopesticides in sub-Saharan Africa and to propose appropriate interventions to promote the use of these products as a sustainable tool for climate change adaptation.