Screening polyextremophiles for biomineralization of organochlorine pesticide stockpiles in Kenya (Junior Fellowship: Dr. Benson Wamalwa)

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Stockpiled obsolete pesticides (mainly organochlorine compounds) are a serious and growing public health and environmental danger confronting nearly every country in Africa. This project proposes to develop novel biotechnological alternatives for the safe and sustainable disposal of recalcitrant obsolete pesticides. A "search, discover and harness" approach is envisaged where microorganisms that can tolerate multiple environmental extremes (polyextremophiles) will be screened systematically for new biological activities and biochemical pathways for the detoxification, degradation or complete mineralization of environmentally persistent organochlorine pesticides. This project is expected to catalogue new microbial taxa, discover novel biodegradative routes for recalcitrant chemical pesticides, and create new biotechnologies for pesticide stockpile elimination using 'mined' polyextremophile genes. In doing so, the project will have harnessed natural resources to generate information beyond existing knowledge and understanding as well as new tools for bioengineering cheap non-polluting bioprocesses for the rapid mineralization of organochlorine pesticides.

Projektbeteiligte

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