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# Natural products research: A potential source of innovative new drug discovery and development

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Enabling innovation and access to health technologies remains a key strategy in combating infectious diseases in low and middle income countries. In such countries, infectious disease are a leading cause of death and are difficult to control if the infectious agents evolve resistance to commonly used drugs. Modern medicine needs new kinds of antibiotics and antivirals to treat drug-resistant infections. One source of such drugs lies in medicinal plants, an available resource still abundant in Africa. Both herbal and traditional medicines of plant origin have provided templates that have served as scaffolds for rational drug design. We have presented a new management therapy being developed for herpes infection in human from a medicinal plant with activity for both acyclovir resistant and sensitive strains of Herpes Simplex Virus. Herpes is a viral infection affecting over 60% of the Sub-Saharan Africa young adult population. The herbal product, Zedupex has been evaluated for preclinical safety and efficacy in suitable *in vitro* and *in vivo* systems of herpes infections. Cytotoxic concentrations of the product in mammalian cell lines have indicated a wide therapeutic index ($CC_{50}$≥58.5±4.6 µg/ml). *In vivo*, an $EC_{50}$ of ≤14.7±3.7 µg/ml for both wild type and resistant strains of HSV has been realized in plaque and viral yield assays. Oral (250 mg/kg) and topical (10% cream) administrations exhibits a significant delay in onset of infections, hindered progression of infection to lethal forms with increased mean survival times and low mortality with no acute toxicity at therapeutic concentrations. Financial constrains has slowed down the progression of clinical trial stages in human of this product but results so far obtained exemplify the potential that still exists from medicinal plants.

## Biography

Festus M Tolo is a Medicinal Phytobiologist holding a PhD in Medicinal Phytochemistry, a fellow at the African Scientific Institute and an awardee of the "The Nelon Gold Award (NGA)" of the Kenya Medical Research Institute (KEMRI). He also holds the Inter-Academy Medical Panel "Distinguished Scientist Award" of the Chinese Medical Sciences (CACMS) and Chinese Academy of Engineering (CAE) in Natural Products Research. Tolo is a Chief Research Officer and the Head of the Natural Products Research and Drug Development Programme (NAPREDA) at KEMRI.

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