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Tropical herbs and spices from Mauritius as alternative biomedicine to manage communicable and non-communicable diseases

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ABSTRACT Mauritius, is a famous touristic tropical island that forms part of the Mascarene Islands in the Indian Ocean. The Island is also well known for its rich cultural and ethnic diversity and for its singular flora and fauna. The local population has been relying on traditional medicine including the use of endemic and indigenous plants, herbs and spices as alternative and complementary medicine for the management of common ailments. Indeed, tropical herbs and spices have always been an important source of lead compounds in the drug discovery process. Such traditional system of medicine has been increasingly used for therapeutic purposes against a panoply of human diseases globally. Over the past years, attempts have been made to document such uses and to validate these traditional claims. This presentation will endeavour to highlight recent progress on the use of herbs and spices in the treatment and/or management of common communicable and non-communicable diseases in light of ethnopharmacological and epidemiological surveys, and *in vitro*, *in vivo* and *in silico* lab-based studies. The ethnopharmacological/epidemiological investigations have led to documentation of several exotic, indigenous and endemic medicinal plant and animal remedies commonly used by Mauritians in the management of diabetes, pain, infectious diseases, against women and paediatric ailments. *In vitro* and *in vivo* studies have attempted to validate against non-communicable diseases *via* inhibition properties against enzymes of clinical relevance (amylase, glucosidase, lipases, and cholerases). Enzymes kinetics studies have been conducted to determine the mode of inhibition and *in silico* molecular docking studies used to provide additional insights on the mode of binding of bioactive compounds from the plant extracts and the target enzymes. The plants have also been studied against infectious diseases *via* evaluation of bacteriostatic and bactericidal activities against pathogenic and antibiotic-resistant strains, biofilm eradication potential, and antibiotic potentiating activity). Data amassed so far from the Mauritian flora has shown that the local tropical biodiversity can be an important sustainable source of biomedicines for future drug development programs.

Keywords: Mauritius; *In vitro*; *In silico*; Mascarenes Island; Indian Ocean; Traditional medicine


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