

Project Title: Ethnopharmacology of South African Plants used in the Treatment of Depression

In collaboration the Nord West University, South Africa, funded by the Wellcome Trust and the International Brain Research Organization.

Background

Ethnobotanical reports provide empirical evidence on the use of herbal medicines amongst African communities however, lack of characterisation and unknown mechanisms remain a barrier to further development into novel therapies such as anti-depressants. A review paper from our group identified 185 plants with ethnobotanical evidence as a treatment for depression-like ailments, of these 85 % of the identified plants remain untapped as potential mono and/or adjunctive treatment of anti-depressant drugs.

Aim

This project aims to generate pilot data from 5 promising South African plants used by communities for depression through fingerprinting and network pharmacology molecular docking applications.

Methodology

Five promising plants will be, collected and extracted, and a voucher specimen created at NWU. Plant extract will be shipped to Germany, for quality control utilising LC-Tof-MS and NMR techniques to identify phytochemicals. Thereafter, the Pharm Mapper server will apply reverse pharma core mapping to potential protein targets for known compounds found in one plant extract in this study. The Kyoto Encyclopaedia of Genes and Genomes (KEGG) software will be used to predict possible compound-target pathways to uncover possible mechanisms of action that be evaluated in animals to improve the efficacy of anti-depressants when co-treated. The results will inform the study design of the concept note that will be prepared in collaboration with the LE advisor and the psychiatrist.

Expected outcomes.

The expected outcome of the current project is having a chromatographic fingerprint of selected plants identifying phytochemicals present in each plant. Moreover, to predict possible binding between the phytochemicals and pathways of depression to inform the study design of animal models in phase 2 when the project is upscaled. To build a transdisciplinary team and incorporate the LE advisors. To disseminate the research result through at least 1 publication and 2 conference presentations.

For more information, access: www.ethnopharmacology.de