

Free Radical Scavenging Activity and Total Phenolic Assessment of Drug Repurposed Medicinal Plant Metabolites: Promising Tools against Post COVID-19 Syndromes and Non-Communicable Diseases in Botswana

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Abstract : There is a plethora of evidence from numerous sources that highlights the triumph of naturally derived medicinal plant metabolites with antioxidant capability for repurposed therapeutics. As post-COVID-19 syndromes and non-communicable diseases are on the rise, there is an urgent need to come up with new therapeutic strategies to address the problem. Non-communicable diseases and Post COVID-19 syndromes are classified as socio-economic diseases and are ranked high among threats to health security due to the economic burden they pose to any government budget commitment. Research has shown a strong link between accumulation of free radicals and oxidative stress critical for pathogenesis of non-communicable diseases and COVID-19 syndromes. Botswana has embarked on a robust programme derived from ethno-pharmacognosy and drug repurposing to address these threats to health security. In the current approach, a number of medicinally active plant-derived polyphenolics are repurposed and combined into new medicinal tools to target diabetes, Hypertension, Prostate Cancer and oxidative stress induced Post COVID 19 syndromes such as "brain fog". All four formulants demonstrated Free Radical scavenging capacities above 95% at 200µg/ml using the diphenylpicrylhydrazyl free radical scavenging assay and the total phenolic contents between 6899-15000GAE(g/L) using the folin-ciocalteau assay respectively. These repurposed medicinal tools offer new hope and potential in the fight against emerging health threats driven by hyper-inflammation and free radical-induced oxidative stress.

Keywords : drug repurposed plant polyphenolics, free radical damage, non-communicable diseases, post COVID 19 syndromes

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