ABSTRACT

In this plastic society the synthetic drugs are becoming the trend for the cure of various diseases. No doubt, there are many potential benefits of these processed medicines but many potential threats are associated with these synthetic drugs and the major concern is associated with AMR (antimicrobial resistance). In this work we selected leave extract of *Wrightia Coccinea Sims* and performed various *in vitro* antimicrobial and antioxidant assays. Metabolic profiling of *W. coccinea* extract, antioxidant and antimicrobial potential determination of this extract. Extraction with DCM and treated with NA_2SO_4 in order to remove water content and thissample was forwarded for GC-MS analysis. For leaves extract preparation, the quenching of freshly plucked leaves was made with liquid nitrogen after cleaning of leaves. Then solvent composition was prepared by mixing ethanol and water in proportion of aqueous, 20% methanol, 40% methanol, 60% methanol, 80% methanol and 100% methanol. Quenched leaves powder was extracted with these solvents' composition through ultra-sonication for 30 min followed by rotary evaporation, and lyophilization to eliminate all water content. After the calculation of extract yield %, then antioxidant potentials of these extracts were measured by ABTS Assay, DPPH assay, TPC assay and TFC assay. The antimicrobial activities of extracts were determined by using well-diffusion method against two bacteria; *Escherichia Coli* and *Streptococcus Aureus* and antifungal activity is determined by using *Aspergillus Niger.* On the other hand, yield obtained from *W. coccinea* leaves extracts were 42.08%, 19.76%, 18.64%, 18.18%, 18.58%, and 18.50% for aqueous, 20% methanol, 40% methanol, 60% methanol, 80% methanol, and pure methanol, respectively. DPPH radical scavenging percentage was 72.0 %, 76.3%, 77.7%, 78.5%, 81.8%, and 83.2% for aqueous, 20% methanol, 40% methanol, 60% methanol, 80% methanol, and pure methanol, respectively. %age inhibition value of these extract calculated through ABTS assay was 66.8%, 69.8%, 75.7%, 79.9%, 84.7% and 87.9% for aqueous, 20% ethanol, 40% ethanol, 60% ethanol, 80% ethanol, and pure ethanol, respectively. Absorbance values of these extract calculated through TFC assay was 0.282 nm, 0.291 nm, 0.331 nm, 0.352 nm, 0.386 nm and 0.412 nm for aqueous, 20% ethanol, 40% ethanol, 60% ethanol, 80% ethanol, and pure ethanol, respectively. TPC assay was 0.613 nm, 0.0.594 nm, 0.554 nm, 0.510 nm, 0.427 nm and 0.341 nm for aqueous, 20% ethanol, 40% ethanol, 60% ethanol, 80% ethanol, and pure ethanol, respectively