

ABSTRACT

The study focused on the identification of Sterculia pallens metabolites in order to determine the anti-oxidant and anti-bacterial potential of Sterculia pallens leaf extract and explore its importance in the pharmaceutical industry. The extraction of leaves is done with the mixture of ethanol and water dilutions. The solvent fractions are taken for 6 dilutions respectively in aqueous, 4 samples of ethanol and water as 1:4, 2:3, 3:2, 4:1, and 100% ethanol. In all dilutions, almost 5 g of plant extract were added up and the percentage yield for each sample calculated. The maximum yield found in the sample of 3:2, which contained 60% ethanol and 40% water content, was 36.86% of the total yield obtained for Sterculia pallens. Then anti-oxidant activity was performed on the samples by DPPH and ABTs methods; in both results, maximum radical scavenging activity was shown by 60% ethanol extract. The antioxidant assay results indicate that this sample contains more phenolic and flavonoids content. To evaluate the biological efficacy of sample antibacterial activity against two strains, Klebsiella pneumoniae and Bacillus coagulans, one of which is gram-negative and the other is gram-positive, Plant extract showed greater bactericidal efficiency for gram-positive bacteria as compared to effectiveness against gram-negative Klebsiella pneumoniae. The other part was the analysis of the metabolomics of Sterculia pallens through GC-MS analysis. For this purpose, extraction of essential oil from s. pallens leaves of the plant was done on a Clevenger apparatus. For the optimization of extract yield a range of temperature used from 70-90°C less than boiling points of water then solvent extraction of sample and GC-MS analysis performed. The chromatogram obtained from the GC-MS was confirmed with the help of the GC-MS library and literature survey. The results clearly show that the extract contains a higher concentration of flavonoids and phenolic compounds. These compounds indicate the pharmacological and nutraceutical importance of plants.