

ABSTRACT

The present investigation includes phytochemical analysis, antibacterial, antifungal, antioxidant and anthelmintic activities of the different parts of *Euphorbia prostrata* Ait. and *Phyllanthus urinaria* L. The extracts of leaf, stem, root and fruit were prepared in polar and non-polar solvents, i.e. n-hexane, chloroform, ethanol and dist. water using maceration technique. The phytochemical analysis was done using standard protocol. The zone of inhibition and MIC assay were carried out by using the agar well diffusion method and broth dilution assay. The investigation indicated that the root and fruit extracts of both the plants had highest antimicrobial potential. In *E. prostrata* Ait. the antibacterial activity of the aqueous extracts of fruit was found significant against *Staphylococcus aureus*, having 41 ± 0.9 mm zone of inhibition, as compared to the standard discs, Azithromycin and Tazobactam with 23 ± 0.6 mm and 24 ± 1.5 mm zone of inhibition respectively. Moreover, all the extracts macerated against ethanol and aqueous had exhibited a reasonably good inhibitory effect against all the bacterial strains. Overall, the maximum results were noted for the fruit and root extracts against the gram positive bacterial strains. However, the n-hexane extracts of leaf failed to exhibit any satisfactory potential as compared to other solvents against the same bacterial strain. The antifungal potential was maximum, in the aqueous extracts of the fruit of *E. prostrata* Ait. against *Aspergillus oryzae*, i.e. 37 ± 0.4 mm, whereas aqueous extract of leaves of *E. prostrata* Ait. showed best potential against *A.niger*, i.e. 33 ± 0.3 mm as compared to standard antifungal discs (Fungivin and Grisofulvin). Similarly, in case of *P. urinaria* L. the maximum antibacterial potential was recorded by the aqueous extracts of the root against *S. aureus*, i.e. 51 ± 0.3 mm as compared to the standard discs (Azithromycin and Tazobactam) having 23 ± 0.6 mm and 24 ± 1.5 mm zone of inhibition respectively. The maximum antifungal activity of the aqueous extracts of the fruit of this plant, against *A. oryzae* was 37 ± 0.4 mm. MIC assay was carried out for further analysis which showed the MIC value of *E. prostrata* Ait. fruit extracts, i.e. 0.012 ± 1.2 at 0.3 mg/ml against *B. subtilis* and 0.013 ± 0.7 at 0.3mg/ml by stem extract of *P. urinaria* L. against *E. coli*. The MIC values of the methanolic root extracts of *P. urinaria* L. against *A. niger* was 0.008 ± 0.4 at 0.3 mg/ml concentration.

Antioxidant potential was determined by using five activities and highest value of % 2,2'-Diphenyl-1-picrylhydrazyl Radical (DPPH) was observed by *E. prostrata* Ait. ethanol fruit extracts. The maximum 2,2'-Azinobis 3-Ethylbenzo Thiazoline-6-Sulphonic Acid (ABTS) potential was exhibited by the aqueous extracts of the root. While the other Total Phenolic Content (TPC), Total Flavonoid Content (TFC) and metal chelating activity was found to be maximum in the ethanol extracts of both the plants.

Qualitative phytochemicals tests exhibited the presence of maximum alkaloids, flavonoids, terpenoids, tannins and saponins in all the extracts of bot the plants.

The anthelmintic potential checked against the worm, i.e. *Haemonchus contortus*, disclosed the paralysis period in aqueous extract of the root of *P. urinaria* L. from 1.5 to 11.5 minutes at the concentration of 100 $\mu\text{g/ml}$. The chloroform extracts of leaf indicated least effective paralysis time. The death period was noticed from 4.7 to 15.3 minutes at a concentration of 100 $\mu\text{g/ml}$. A significant short death period was observed after treatment by root aqueous extracts.