ABSRACT

The antimicrobial, antioxidant potential and phytochemical tests of different parts of *Nicotiana plumbajnifolia* Viv. and *Solanum erianthum* D.Don were investigated by using various techniques. The zone of inhibition and MIC assay were carried out by using the agar well diffusion method and broth dilution method. The results showed that the both plants showed the significant antibacterial potential as compared to the standard discs. The maximum antibacterial potential was recorded by the leaves extract of chloroform of *N. plumbajnifolia*, i.e. 76±0.6mm against *P.aeruginosa* and minimum zone of inhibition was showed by aqueous extracts of fruits against *E.coli* 10±0.6mm as compare to the standard discs Ampicillin and Cephradine with the value of zone of inhibition 23±0.6mm and 24±1.5mm respectively. Methanolic extract of *S. erianthum* root showed maximum antibacterial potential against *P.aeruginosa.* Other plant extracts also showed significant results against other bacterial strains. Similarly the antifungal potential of the both plants were noted. The maximum antifungal potential was showed by the methanolic extract of fruit against *F.solani* 42±0.4mm and aqueous extract of stem against *A.niger* 43±0.2mm where as Methanolic extract of leaves of *S.erianthum* showed best potential against *F.solani* and *A.niger* i.e. 40±0.3mm and 43±0.4mm as compared to antifungal standard disc (Itraconale 10±1.8mm and Voriconazole 40±2.0mm). MIC assay was carried out for further analysis which showed the MIC value of *N. plumbajnifolia* root methanolic extracts, ie 0.04±0.01 at 0.8 mg/ml against *E.coli.* 0.05±0.03 at 0.6mg/ml was showed by stem extract of *S.erianthum* against *P. aeruginosa* during the evaluation of antibacterial potential where as 0.03±0.4 showed methanolic leaves extracts of *N. plumbajnifolia* 0.03±0.4 against *A.niger* and 0.04±0.01 was showed by the root extracts of *S. erianthum* at 0.3mg/ml against *F. solani.*

Antioxidant potential was determined by using five activities and highest value of %DPPH was observed by *N.plumbajnifolia* root 90.56±0.03 at 1000 µL concentration in petroleum ether extract. % DPPH observed by *S. erianthum* stem extract of Petroleum ether at 1000 µL concentration 70.66±0.3. Maximum values of Total antioxidant activity 1.065±0.02 by Petroleum ether root extract of and *N. plumbajnifolia* 1.065±0.6 was by *S. erianthum* Petroleum ether extract of root. Total phenolic content TPC of Nicotiana leaves extract of Petroleum ether 1.155±0.09 and of *S. erianthum* leaves extract of Petroleum ether 1.769±0.2. Highest FRAP value of *N. plumbajnifolia* stem 80.66±0.08. *S.erianthum* stem extract of Petroleum ether

was determined of methanolic root extract of *N.plumbajnifolia* i.e.61.55±0.06 and of *S. erianthum* aqueous extract of fruit i.e.61.5±0.1.

Qualitative and quantitave phytochemicals tests were determined and maximum alkaloids were present in the fruit 13.40±0.3 and flavonoids were in leaves i.e. 17.50±1.2 phenols were in root 10.21±0.7 saponins were in leaves i.e. 09.24±0.8 and tannins were 07.03±0.01 present in the root of *N. plumbajnifolia.* Quantitave analysis of *S.erianthum* showed maximum alkaloids present in stem 15.40±0.7. Flavonoid were present in the leaves 13.50±0.5. Phenols were present in leaves 12.30±1.0. Tannins were present in stem of i.e.. 08.60±0.3.

An additional antidiabetic and analgesic activities was carried out with the methanolic extracts. Methanolic extracts of *N.plumbajnifolia* leaves showed maximum reduction in blood glucose level 95.33±13.6 as compared to standard drug Metformin(2g/kg) which showed reduction 87.6±2.5.Analgesic activity was estimated by two tests acetic acid induced writhing and hot plate test both plant extracts showed analgesic potential. 81% inhibition in writhing was exhibited by methanolic extract of *N. plumbajnifolia* root and 85%*** inhibition was showed by fruit extracts of *S. erianthum.* Hot plate test was also employed. Maximum heat tolerance was recorded by *N. plumbajnifolia* root extract 15.98±2.14** as compared to control 2.99±0.33.