

ABSTRACT

During the present research work three plants, i.e. *Mansoa alliacea*, *Tecomaria capensis* and *Tecoma stans* belonging to family Bignoniaceae were evaluated for their ethnopharmacological importance. Stem and leaf powder of all the plants were used for steady state maceration using *n*-hexane, chloroform, ethanol and water as solvents. The maximum % extraction yield was observed in leaf aqueous extract of *T. capensis*, *T. stans* and *M. alliacea*, i.e. 17.98%, 15.48% and 12.52%, respectively. The phytochemical investigation showed the presence of alkaloids, cardiac glycosides, flavonoids, reducing sugars, saponins, tannins and terpenoids in most of the extracts of all the plants. FTIR (Fourier Transform Infrared) spectrum of the powder plant parts showed the presence of polysaccharides, saponins, lipids, terpenes, polyphenols, etc. Maximum amount of flavonoid content was observed in stem aqueous extract of *T. capensis* and *M. alliacea*, i.e. 341.54 mg RE/g of the extract and 231.21 mg RE/g of the extract, respectively. Minimum amount of flavonoid was observed in stem aqueous extract of *T. stans*, i.e. 26.15 mg RE/g of the extract. Total phenolic contents were expressed in maximum amount in leaf aqueous extract of *T. stans*, i.e. 354.85 mg GAE/g of the extract followed by stem ethanol extract of *M. alliacea*, i.e. 143.17 mg GAE/g of the extract and leaf ethanol extract of *T. capensis*, i.e. 123.39 mg GAE/g of the extract. Total antioxidant activity was found maximum in leaf aqueous and ethanol extract of *M. alliacea* followed by leaf aqueous and stem ethanol extracts of *T. stans*, i.e. 100.25, 99.45, 93.82 and 89.09 AE μ g/mL, respectively. The metal chelating activity by % inhibition of ferrozine complex formation was observed maximum in stem aqueous extract of *M. alliacea* followed by leaf ethanol extract of *T. capensis* and ethanol stem extract of *T. stans*, i.e. 94.31%, 93.82% and 92.75%. The % inhibition of lipid peroxidation was best observed in stem aqueous and ethanol extract of *T. capensis* followed by stem aqueous extract of *M. alliacea*, i.e. 97.39%, 94.50% and 93.92%, respectively. The DPPH radical scavenging potential was found maximum in leaf aqueous extract of *M. alliacea* with IC_{50} 22.66 μ g/mL followed by ethanol extract of the stem, i.e. 25.46 μ g/mL. For *T. capensis* good IC_{50} was showed by leaf ethanol extract followed by stem ethanol extract, i.e. 25.03 μ g/mL and 27.17 μ g/mL, respectively. Leaf and stem ethanol extract of *T. stans* exhibited good IC_{50} among other extracts of this plant, i.e. 30.11 μ g/mL and 29.74 μ g/mL, respectively. Best antibacterial activity as zone of inhibition was showed by *n*-hexane

stem extract of *M. alliacea* against *Escherichia coli*, i.e. 42.20mm with 1.25mg/mL MIC. The stem extract of *T. capensis* was found more active against *Bacillus subtilis* as stem ethanol and *n*-hexane extracts exhibited 37.60mm and 36.80mm zone of inhibition with 2.5mg/mL MIC. Stem chloroform and *n*-hexane extracts of *T. stans* exhibited zone of inhibition 26.13mm and 25.30mm with 2.5mg/mL MIC against *P. aeruginosa* and *E. coli*, respectively, while leaf *n*-hexane extract showed zone of inhibition 26.80mm and 25.37mm with 2.5mg/mL MIC against *E. coli* and *P. aeruginosa*, respectively. PCR of the virus confirmed the FMDV type O as its genome was consisted of 1301bp. The cytotoxic and antiviral effect was checked on BHK-21 cells in the form of cell survival percentage (CSP). The stem and leaf *n*-hexane extracts of *M. alliacea* were found antiviral at the concentration range of 15.62-125 μ g/mL and 15.62-250 μ g/mL with CSP more than 50%. Similarly the range of 31.25-125 μ g/mL was antiviral for chloroform stem and leaf extracts. The ethanol and water extracts of stem and leaf were found active against virus at 15.62-125 μ g/mL. The *n*-hexane and chloroform extracts of *T. capensis* and *T. stans* were not antiviral, while the ethanol extracts of these plants were found active at 31.25-125 μ g/mL. The aqueous extracts of *T. capensis* and *T. stans* were antiviral at 31.25-62.5 μ g/mL and 31.25-125 μ g/mL, respectively. The cell survival percentage at all these extracts was more than 50%. Overall results showed that *M. alliacea* had good antioxidant, antibacterial and antiviral agents as compared to *T. capensis* and *T. stans*, respectively.