

ABSTRACT

The present investigation was carried out to explore the ethnopharmacological potential of ethnobotanically important three plants, *Olea europaea* L., *O. ferruginea* Royle and *J. sambac* (L.) Aiton belonging to family Oleaceae. The stem and leaf powder of all these plants were macerated in polar and non-polar solvents, i.e. distilled water, ethanol, chloroform and n-hexane, respectively. Maximum percentage yield was obtained in the stem aqueous extract of *Olea ferruginea* (13.11%) while least in stem chloroform extracts of *Jasminum sambac* (2.1%). The phytochemical analysis revealed the presence of alkaloids, anthraquinines, tannins, flavonoids, reducing sugars, cardiac glycosides, saponins and terpenoids in moderate quantity in *Olea europaea* and *O. ferruginea* while least amount in *Jasminum sambac* which was further confirmed by FTIR analysis. The antimicrobial activity of plant extracts was checked against *Bacillus subtilis*, *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Escherichia coli* and found maximum with stem ethanol extract of *Olea europaea*, i.e. 38.07 ± 2.76 mm against *P. aeruginosa* while minimum by stem chloroform extract of *Olea ferruginea*, i.e. 5.23 ± 1.08 mm against *E. coli*. The stem aqueous extract of *Olea europaea*, stem n-hexane extract of *Olea ferruginea* and stem ethanol extract of *Jasminum sambac* showed MIC at 1.25mg/mL. The antioxidant analysis concluded that ethanol leaf extract of *Olea ferruginea* demonstrated IC₅₀ value 12 µg/mL (DPPH scavenging activity). Significant metal chelating activity was observed by stem chloroform extract of *Olea europaea* 98.06±1.61%. Ethanol stem extract of *Olea europaea* presented maximum % inhibition of peroxidation (91.72±1.60 %) as compared to other extracts of *Olea ferruginea* and *Jasminum sambac*. Maximum amount of total phenolic contents were found in the leaf ethanol extracts of (142.97±1.67 GAE µg/mL). Leaf ethanol extract of *Olea ferruginea* and *Olea europaea* presented maximum total antioxidant activity (1.551±0.657 AE µg/mL) and (1.493±0.762) respectively. Molecular identification of universal FMDV was accomplished using Reverse Transcriptase Chain Reaction (RT-PCR). BHK-21 cells were used to check toxicity of different extracts of tested plants while their antiviral potency was also examined against FMDV. It was observed that alcohol leaf extracts of *Olea europaea* had potent antiviral activity at concentration range of 31.25µg/mL to 250µg/mL with CSP ranging from 51% to 63% followed by activity of chloroform extracts where cell survival percentage was observed 54% and

57% at concentration 31.25µg/mL and 62.5µg/mL respectively. The *n*-hexane leaf extract of *O. europaea* exhibited antiviral activity at concentration of 15.62µg/mL to 125µg/mL. CSP in aqueous extracts was 50% at concentration range of 31.25µg/mL and 62.5µg/mL, respectively. All stem extracts of *Jasminum sambac* were found non-toxic to BHK-21 cells at different concentrations but had no antiviral potential against FMDV at the same concentration range. On the basis of the results obtained in the present studies, the traditional use of the three targeted plants of family Oleaceae as food, fodder, feed and medicine seems appropriate and thus is justified.