

ABSTRACT

The present study aimed to evaluate the antimicrobial and antioxidant activity of callus cultures of *M. charantia* (L.). The maximum germination of seeds were achieved in petri plates containing 20ml (sterile water)/g of cotton pads. *In vitro* protocol for callus induction was successfully established by using different explants i.e., cotyledon, hypocotyl and root. MS medium was supplemented with different concentrations of plant growth regulators individually and their combinations. The best combination found was BAP and 2, 4-D (2 mg/l + 2 mg/l) for callus induction in hypocotyl, cotyledon and root explant. NAA and BAP (1 mg/L + 1mg/L) were also useful in callus induction from hypocotyl, cotyledon and root explant. The callus cultures were dried and used to make extracts in polar and non-polar solvents such as chloroform, methanol, distilled water and n-Hexane respectively. The antimicrobial activity was examined against one gram +ve bacteria *Bacillus subtilis* and two gram -ve bacteria *Pseudomonas aeruginosa* and *Escherichia coli*. Two fungal strains were also tested named *Aspergillus niger* and *Aspergillus oryzae*. The maximum Zone of Inhibition against bacterial strains observed was 35 mm and minimum as 3 mm. For fungal pathogens, the maximum Zone of Inhibition was produced 11 mm and minimum as 2 mm. The antioxidant activity of callus extracts were evaluated by performing two activities i.e., free radical scavenging activity % DPPH and Metal chelating activity. The significant DPPH scavenging activity were showed at 49.18% and minimum at 8.5%. The callus extracts were showed maximum metal chelating activity at 49.96% and minimum as 6.85%. The antimicrobial and antioxidant activity of *M. charantia* callus culture extracts suggested that it can be used as a source material in pharmaceutical research.