

ABSTRACT

Dengue viruses infect millions of people worldwide in tropical and subtropical areas. There is no vaccine or antidengue drug available for treatment of this disease. Medicinal plant extracts containing various compounds and their derivatives have been used for the development of antiviral drugs because of their least harmful effects and high convenience in nature. Current study involves Screening of various medicinal plants for anti-dengue activities that is strategy in order to find the potent therapeutic compounds. Methanolic extracts of leaves of local medicinal plants *Olea ferruginea*, *Azadirachta indica* and *Cymbopogon citratus* was used to investigate their antiviral activity against Dengue virus type 2 in mouse hepatocyte cell line *in vitro*. Mouse primary hepatocytes were cultured and Cytotoxicity of these methanolic extracts were checked by neutral red uptake assay to find out the non toxic concentrations at which cells were able to maintain their normal morphology. The percentage of viral inhibition by these plants extracts was checked on mouse primary hepatocytes measured by plaque formation assay *in vitro*. Methanolic extracts of *O. ferruginea* and *C. citratus* leaves were less toxic as compare to *A. indica* extract. The latter was able to maintain the normal morphology of DENV-2 infected mouse hepatocytes without causing much mortality of cells. Cell survival 80-100% was observed against 0.06, 0.15 and 0.08mg/ml for *O. ferruginea*, *A. indica* and *C. citratus* extract respectively. However 50% cell survival was observed for the same extracts against 0.40, 0.80 and 0.40mg/ml respectively. Methanolic extract of *O. ferruginea* was most effective to inhibit DENV-2 where 43.55% inhibition was observed against 0.08mg/ml whereas *A. indica* and *C. citratus* leaves extracts caused 42.62% and 38.71% inhibition of DENV-2 against 0.15mg/ml and 0.08mg/ml respectively. Plaque forming unit (PFU/ml) calculated for each extract at its highest concentration at which 100% cell survival takes place was 1.1×10^6 PFU/ml for *O. ferruginea* and *A. indica* while 1.2×10^6 PFU/ml for *C. citratus* leaves extracts, respectively. In conclusion methanolic fruit extract of *O. ferruginea* indicated high potential for inhibition of DENV-2 as compare to other two of extracts. However further separation of active compound from this fruit extract should be investigated.