

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 extract of two local medicinal plants (*Carica papaya*, *Mentha piperita*) leaves and fruit extract of *Citrullus colocynthis* 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 plant extracts was checked on mouse primary hepatocytes measured by plaque formation assay in vitro. Methanolic extracts of *C. papaya* and *M. piperita* leaves were less toxic as compare to fruit extract of *C. colocynthis*. The latter was able to maintain the normal morphology of DENV2-infected mouse hepatocytes without causing much mortality of cells. Cell survival 80-100% was observed against 0.30mg/ml, 0.20mg/ml and 0.08mg/ml for *C. papaya* and *M. piperita* leaves extract and *C. colocynthis* fruit extract respectively. However 50% cell survival was observed for the same extracts against 1.20mg/ml, 0.60mg/ml and 0.40mg/ml for respectively. Fruit extract of *C. colocynthis* was most effective to inhibit DENV-2 where 46.55% inhibition was observed against 0.08mg/ml where as *M. piperita* and *C. papaya* leaves extract caused 24.14% and 23.33% inhibition of DENV-2 against 0.20mg/ml and 0.30mg/ml respectively. Plaque forming unit (PFU/ml) calculated for each extract at its highest concentration at which 100% cell survival takes place was 1.5×10^6 , 1.4×10^6 and 1.0×10^6 PFU/ml for *C. papaya* and *M. piperita* leaves extract and *C. colocynthis* fruit extract respectively. In conclusion methanolic fruit extract of *Citrullus colocynthis* 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.