



116/A/Poster

Preliminary results of anti-dengue viral activity of five plants used in Sri Lankan traditional medicine

K. G. Jayasekara^{1*}, P. Soysa², T. S. Suresh³, C. L. Goonasekara⁴, K. M. Gunasekera⁵

¹*Department of Medical Laboratory Science, Faculty of Allied Health Sciences, University of Ruhuna*

²*Department of Biochemistry and Molecular Biology, Faculty of Medicine, University of Colombo*

³*Department of Biochemistry, Faculty of Medical Sciences, University of Sri Jayewardenepura*

⁴*Department of Pre Clinical Sciences, Faculty of Medicine, General Sir John Kotelawala Defense University*

⁵*Department of Microbiology, Faculty of Medical Sciences, University of Sri Jayewardenepura.*

Dengue viral infection is one of the most important mosquito borne viral infections in the world. Nonetheless, there are no effective antiviral agents for treatment at present. For centuries plants and plant extracts have been used in traditional medicine for the treatment of various infections. As *Psidium guajava* (Guava) leaves, *Solanum xanthocarpum* (Katuwelbatu) whole plant, *Munronia pinnata* (Bin kohomba) whole plant, *Glycyrrhiza glabra* (Wal-mee) roots and *Aegle marmelos* (Bael) dried flowers have been used for treating fever patients in folk medicine, they were selected for a preliminary study of anti -dengue activity. Plants were collected and crude aqueous extracts were prepared. Cell cytotoxicity assay with (4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) was performed on Vero cells and 50% cytotoxic concentration (CC₅₀) was calculated for all plants. Plaque reduction anti-viral assay was performed on Vero cells for dengue-4 virus and half maximal inhibitory concentration (IC₅₀) was calculated. *Munronia pinnata* [SI index = 8.3; CC₅₀ = 217.9 µg/ml; IC₅₀ = 26.12 µg/ml; Maximum non toxic dose (MNTD) 125 µg/ml] and *Glycyrrhiza glabra* [SI index = >16 CC₅₀ = >500 µg/ml; IC₅₀ = <31.25.; MNTD >500 µg/ml] were identified as having the highest SI indices with good MNTDs. These two plants have shown good inhibitory activity against dengue virus serotype 4 in Vero cells. However, these findings need to be confirmed with dengue virus serotypes 1, 2 and 3 and in human cell lines. Based on *in vitro* studies, *Munronia pinnata* and *Glycyrrhiza glabra* are candidates for identifying biologically active compounds with anti-dengue activity.

Acknowledgment: Financial assistance by University of Sri Jayewardenepura Research grant (ASP/01/RE/MED/2015/42).