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IN VITRO CYTOTOXICITY OF *PHYLLANTHUS EMBLICA* LEAF EXTRACT

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Phyllanthus emblica (*nelli*) is a traditional medicinal plant used to treat many diseases. Here we tested the toxicity of the *P. emblica* on mammalian (Vero) cells as part of an antiviral screening of plant products against dengue using the CytoTox-96® Non-Radioactive Cytotoxicity Assay. This colourimetric assay quantitatively measures lactate dehydrogenase released upon cell lysis. *P. emblica* leaves were ground, and two-fold dilution series was prepared using fresh, neat extract. Two 96-well plates were prepared with Vero cells, and an assay was set up with an analytical system based on negative control (without Vero cells), vehicle control (untreated cells) and positive control (lysis solution) with four replicates. Leaf extract was added to the test wells at different concentrations: one plate was incubated for 5 h (LDH has a half-life of approximately 9 h), and the next plate was incubated for 24 h (cell exposure time in antiviral treatment) at 37 ^{o}C. The absorbance data were measured using a standard 96-well plate reader (LabtechLT-4500, Singapore), and the percentage cytotoxicity was calculated for each concentration. The colour intensity and absorbance values decreased with the decreasing concentrations of *P. emblica* leaf extract. The percentage cytotoxicity for dilutions of 1/4, 1/8, 1/16, 1/32, 1/64, 1/128, 1/256, 1/512 and 1/1024 were 95.6, 71.53, 74.77, 82.16, 79.91, 40.25, 7.37, 0.16 and -1.24, respectively, for the 5 h of incubation. The percentage cytotoxicity for dilutions of 1/4, 1/8, 1/16, 1/32, 1/64, 1/128, 1/256, 1/512 and 1/1024 were 141.61, 133.24, 127.78, 121.88, 109.79, 106.67, 30.64, 22.67 and 25.39, respectively for the 24 h of incubation. High concentrations of *P. emblica* extract resulted in high cell lysis. High concentrations of *P. emblica* leaf extracts were cytotoxic to Vero cells. Cytotoxicity data of *P. emblica* leaf extracts help select the minimum toxic concentrations (<1/256) for testing the inhibitory activity of *P. emblica* leaf extract against dengue viral infections.

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Keywords: Cell lysis, Colour intensity, Cytotoxicity, *Phyllanthus emblica* leaf extract