

Safety Assessment and Prophylactic Efficacy of Moringa stenopetala Leaf Extract Through Mitigation of Oxidative Stress in BV-2 Microglial Cell

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Abstract : Moringa stenopetala is often consumed as food and used in folkloric medicine for the management of several diseases. Purpose: This study was set up in order to assess the effect of aqueous extract of Moringa stenopetala on cell viability and oxidative stress biomarkers in BV-2 microglial cells. Aqueous extracts of M. stenopetala were prepared, lyophilized and reconstituted in 0.5% dimethylsulphoxide (DMSO). Cells were treated with M. stenopetala extracts (0.1 - 100 µg/ml) for cell viability and nitric oxide (NO) production tests. However, M. stenopetala extract (50 µg/ml) was used in the treatment of cells for the determination of protein carbonyl content and reactive oxygen species (ROS) level. Incubation of BV-2 microglia cell with M. stenopetala extract maintained cell viability, diminished NO and ROS levels, and reduced protein carbonyl contents. Chlorogenic acid, rutin, kaempferol and quercetin derivatives were the main phenolic compounds identified in M. stenopetala leaf extract. These phenolic compounds present in M. stenopetala may be responsible for the mitigation of oxidative stress in BV-2 microglial cells.

Keywords : oxidative stress, BV-2 microglial cell, Moringa stenopetala, cell viability, antioxidant

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