

Coriandrum sativum leaf extract attenuates cytotoxicity induced by oxidative stress in PC12 cells

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Coriandrum sativum (CS) has been used as folk remedies for Ebers papyrus, an ancient medical record in Egypt over 3000 years. It has been reported that CS shows the effects of the antioxidant and anti-inflammatory. In this study, we examined the protective role of CS leaf extract (CSLE) against the cytotoxicity induced by hydrogen peroxide (H₂O₂) on neurite outgrowth of PC12 cells.

PC12 cells seeded onto 12-well plate (2 × 10⁴ cells/well) were cultured in DMEM medium containing FBS (-), which NGF (12.5 ng/mL) was also added at this time. After 24h, the cells were incubated for 3 days in serum free DMEM containing either CSLE (0.01 μg/mL, 0.1 μg/mL, 1 μg/mL, 10 μg/mL) or ascorbic acid (AA: 50 μg/mL) with H₂O₂. On day 1 and 3, morphometric analysis of the neurites and length was performed by Neurocyte Image Analyzer software. In addition, the expression levels of neurofilament-L (NF-L) were measured by real-time RT-PCR. NGF-induced neurite outgrowth action was significantly suppressed by H₂O₂, and significant improvement was observed in the CSLE (0.01 μg/mL, 0.1 μg/mL), dose-dependently, and AA. The result of real-time RT-PCR, NF-L level was significantly increased by adding of CSLE and AA compared to H₂O₂ group.

These results demonstrate that CSLE has cytoprotective action against hydrogen peroxide-induced cell damage as well as AA.