Free radical scavenging activity and immunomodulatory effect of Stachytarpheta angustifolia leaf extract

Awah, Francis M; Uzoegwu, Peter N; Oyugi, Julius O; Rutherford, John; Ifeonu, Patrick; Yao, Xiao-Jian; Fowke, Keith R; Eze, Michael O

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Abstract:

Plant extracts with antioxidant activity could also have immunomodulatory ability. The free radical scavenging activity of an ethanol extract of the leaves of Stachytarpheta angustifolia was assessed by measuring its capability for scavenging 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical, superoxide anion radical (View the MathML sourceO2-), hydroxyl radical (radical dotOH), nitric oxide radicals (NOradical dot), as well as its ability to inhibit lipid peroxidation, using appropriate assay systems. The extract was also assessed for its ability to decrease the phenotypic expression of the immune activation markers CD38 and CD69. This extract showed a potent antioxidant activity in the DPPH radical-scavenging assay (EC50 = 9.65 μg/ml), significantly inhibited radical dotOH radical (IC50 = 99.43 μg/ml), View the MathML sourceO2- anion radical (IC50 = 64.68 μg/ml), non-enzymatic lipid peroxidation (IC50 = 282.91 μg/ml) and accumulation of nitrite in vitro. Ex vivo the extract inhibited phorbol myristate acetate (PMA)-induced production of superoxide anion (View the MathML sourceO2-), and also exhibited a dose-dependent reduction in the levels of the immune activation marker CD38 and CD69 on phytohemagglutinin A (PHA)-stimulated human peripheral blood mononuclear cells (PBMC). The observed antioxidant activity and immunomodulatory potentials of the extract suggest that it could impart health benefits when consumed. However, further investigation to verify its effect in vivo is warranted.