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Prevention of Endotoxin-induced Shock by Chamaecyparis Leaf Extracts

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Inflammation is a host response to tissue injuries and is characterized by movement of leukocytes. Preliminary results showed that Chamaecyparis leaf extract ameliorated bacterial lipopolysaccharide (LPS)-induced NO production in macrophage. Here, we investigated the underlying molecular mechanisms and protective effects of Chamaecyparis leaf extract against endotoxin shock induced by LPS in mice. Chamaecyparis leaf were extracted by water then eluted with methanol through a Sephadex LH-20 column. Indomethacin (0.25mM) was used as a positive control. RAW 246.7 cells were stimulated in the presence of LPS (1µg/ml) with or without the extracts. NO production was measured as nitrite (using Griess reagent), iNOS protein and mRNA were also investigated using western blotting and RT-PCR. Mice were given different dosages of Chamaecyparis leaf extract (100, 200, 300 mg/kg, i.p.) 30 min after an injection of LPS (20 mg/kg). In the concentration ranges that were devoid of cytotoxicity, Chamaecyparis leaf extracts fraction produced a dose dependent inhibition in LPS-induced NO production. Protein expression of iNOS was also blocked by the extracts. Chamaecyparis leaf extract administration also effectively reduced LPS-induced mortality and inflammation, as evidenced by increased survival rate in a dose dependent manner, decreased serum nitric oxide production and local tissue NF-κB activation. This study shows the extracts of Chamaecyparis leaf effectively block LPS-induced shock and death, is through blockage of NF-κB activation, expression of iNOS and NO production.

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