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Anti-inflammatory potential of Camellia sinensis L. extract in an LPS-induced ARDS lung cell model via modulation of CCL-2, CXCL-9 and IFN-γ expression

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Abstract

Acute Respiratory Distress Syndrome (ARDS) is a severe and potentially life-threatening condition characterized by alveolar-capillary inflammation, leading to lung injury, pulmonary edema, and respiratory failure. Acute Respiratory Distress Syndrome (ARDS) poses a significant challenge in ICUs due to high incidence and high mortality rates, despite advances in medical care. Effective management and treatment strategies are crucial to improving outcomes for patients with ARDS. This study investigates the anti-inflammatory effects of Camellia sinensis L. extract (CSE), rich in epigallocatechin gallate (EGCG), on inflammation-related gene expression in ARDS lung cell model treated with lipopolysaccharide (LPS). Rat alveolar epithelial type II (L2) lung cells induced by LPS were used as the ARDS model and treated with various concentrations of CSE. The gene expressions of CCL-2, CXCL-9, and IFN-γ were analyzed by qRT-PCR. CSE treatment decreased expression of pro-inflammatory genes CCL-2, CXCL-9, and IFN-γ 1.56 µg/ml CSE concentration ($p < 0.05$). The results of the study revealed that CSE exhibited potential as an anti-inflammatory agent by inhibiting key inflammatory mediators, suggesting its therapeutic potential in managing ARDS.

Keywords

Cytokines, Inflammation mediators, Phytotherapy, Plant extracts, Polymerase chain reaction

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