Anti-inflammatory and Immunomodulatory Effects of Bacillus coagulans Unique IS-2

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Summary :

The anti-inflammatory and immunomodulatory effects of Bacillus coagulans Unique IS-2 (BC IS-2) strain was investigated. The anti-inflammatory effects BC IS-2 was studied using lipopolysaccharide (LPS)-induced inflammation of mouse macrophage cells, RAW 264.7 cells, and determining the protein and RNA levels of cyclooxygenase-2 (COX-2) by immunoblot and RT-PCR respectively. The immunomodulatory effects were studied using LPS-activated PBMCs by quantifying the cytokines produced by Th1 cells (TNF-α, IFN-, IL-2) and Th2 cells (IL-6, IL-10). Results of the study show that the anti-inflammatory effects of Bacillus coagulans Unique IS-2 (HUSP BC IS-2) were mediated through inhibition of COX-2 and inflammatory cytokines via inhibition of NF-B activity. The immunomodulatory effects were mediated by significant production of Th1 cytokines. The data suggests that a heat stable component of the supernatant of Bacillus coagulans Unique IS-2 was able to reduce inflammation through modulation of the inflammatory gene expressions of COX-2, NF-B , via cytokines initiating a cellular immune response.