Antibiosis, Chronic Pharyngitis Mitigation and Toxicology of Astragalus bhotanensis

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Abstract

In China, *Astragalus bhotanensis* Baker (AB) has been used for thousands of years and used to treat chronic pharyngitis (CP). In this study, the disk diffusion method was used to assess the antibacterial activities of AB on four bacterial strains. A rat model of CP induced by β-ηεμολψτις στρεπτοςοςςυς (HS) was used to evaluate the ability of AB against CP and its underlying mechanism. Mice were administrated AB at a dose of 20 g/kg, and the survival status, organ index and histopathology, blood routine and biochemistry were measured to evaluate the toxicity of AB. Our results show that AB inhibited the growth of HS, *Diplococcus pneumoniae*, *Staphylococcus aureus*, and *Escherichia coli*. AB decreased serum levels of CRP, PEG2, TNF-α, COX-2, MCP-1, 5-HT, ICAM-1, IL-6, LTC4, and IL-1β. AB reduced infiltration and diffusion of pharyngeal inflammatory cells. AB also decreased the expression of phosphorylated p38 and NFκB, and TLR4 in the throat tissue. At a dose of 20 g/kg AB, routine blood levels and biochemistry were not significantly different. In addition, AB increased the spleen index of mice, but other organ indexes and histopathology were not pathological changes. Our data indicate that AB alleviated HS-induced CP by inhibiting inflammatory responses, which may be involved with regulation of TLR4/p38MAPK/NFκB pathway. A dose of 20 g/kg of AB did not exhibit toxicity in mice, except for the potential toxicity to spleen, and may be the maximum tolerance of mice. AB therefore offers a novel strategy to inhibit inflammatory responses to further alleviate CP.

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