

A study on anti-inflammatory effects of acetyl-11-keto- β -boswellic acid against dextran sodium sulphate induced Colitis in mice

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Ulcerative colitis (UC) is an autoimmune, idiopathic, and inflammatory disorder which affects the lining of the colon and the rectum. UC involves the enhanced disruption of extracellular matrix and obstruction of the mucosal barrier with production of inflammatory cytokines, reactive oxygen species, enzymes, growth factors, etc. Unconventional strategies have consequently been investigated, establishing the use of naturally occurring ingredients which might present potential therapeutic properties for the treatment of chronic disorders including UC. One such agent is acetyl-11-keto-beta-boswellic acid (AKBA), an active derivative of the gum resin extract of *Boswellia serrata*. The present study investigated the anti-inflammatory effect of AKBA against dextran sulfate sodium (DSS) induced colitis in mice. To verify attenuation of DSS induced damage by AKBA, disease activity index (DAI) and body weight changes were monitored daily. After sacrifice of mice, colon length, histopathology of the intestinal wall and the

morphological changes were examined by light microscopy. Anti-oxidant status was investigated by measuring superoxide dismutase, lipid peroxidation, catalase and nitric oxide activities. Gene expression studies were carried out to analyze the gene expression of IL-6, IFN- γ and TNF- α . It was observed that the oral administration of AKBA (5mg/100gm body weight) for 7 days, exhibited potential amelioration of symptoms in DSS treated mice, resulting in the decrease in inflammation and soreness when compared to only DSS fed mice which displayed significant decrease in body weight. Overall results indicated that the AKBA treatment attributed to a collection of activities including anti-inflammatory, anti-apoptosis and anti-oxidative effects. Hence, AKBA and its analogues may be advantageous as an alternate of non-steroidal anti-inflammatory drugs (NSAIDs) to manage inflammatory responses with milder side effects against induced colitis.

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