

## Galangin ameliorates inflammatory changes in pancreas -a study in rats administered ethanol and cerulein

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### ABSTRACT

To investigate whether galangin(GA), a natural flavonoid of the rhizome *Alpinia galanga* modulates the components of NLRP3 inflammasome, a multi protein complex which mediates inflammation by using rat model of experimental pancreatitis induced by administering ethanol(EtOH) and cerulein. For the study, adult male albino Wistar rats were divided into four groups. Group 1 and 2 served as control and received normal diet for 5 weeks. Group 3 and 4 received an isocaloric diet and ethanol (8-12 g/ kg body weight/day) orally and also cerulein (20µg/kg body wt.) intraperitoneally for the last 3 weeks of the experimental period. In addition, group 2 and 4 were administered 100µg/kg body wt. of galangin in corn oil orally by intragastric intubation for the last 3 weeks of the experimental period. The mRNA expression of the NLRP3 components, apoptosis-associated speck-like protein (ASC), pyrin (PYD), and caspase-recruitment (CARD) domains, caspase-1 and the proinflammatory cytokines IL-1β and IL-18 were evaluated by real time quantitative PCR (RT-PCR) technique. Histopathological examination of pancreatic tissue was also carried out. A significant increase in the mRNA expression of ASC-CARD, ASC-PYD, caspase-1, IL-1β and IL-18 were observed in EtOH and cerulein treated rats when compared to control rats. The mRNA expression of these genes were substantially downsized in the galangin supplemented (group 4) rats. The results were supported by histological observations. The anti inflammatory effect of galangin is well evidenced by the results of this study which may be due to its interaction with ASC-CARD and ASC-PYD domains which activate caspase-1 to promote proinflammatory cytokine maturation. Also the observations suggest that galangin downregulates the proinflammatory cytokine activation thereby prevents inflammation and minimizes tissue damage.