

## Inhibitory effect of calotropis gigantea extract on ovalbumin-induced airway inflammation and arachidonic acid induced inflammation in a murine model of asthma

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### Abstract

The root of *Calotropis gigantea* has been reported as a traditional folkloric medicine in treatment of asthma in the Indian literature. Root contain  $\alpha$ - and  $\beta$ -amyrin are reported to possess anti-lipoxygenase activity. Present study was undertaken to investigate the effect of methanolic extract of root of *Calotropis gigantea* (Linn.) R.Br. (CG) on ovalbumin induced asthma and arachidonic acid induced paw edema in rats. In ovalbumin induced asthma, rats were sensitized and challenged with ovalbumin (OVA). The effect of CG at 100, 200, 400 mg/kg, p.o. on inflammatory cell count, level of nitric oxide and total protein in bronchialveolar lavage (BAL) fluid, lung antioxidant enzymes (LPO, GSH, SOD, Catalase) and histopathological changes were observed. Change in paw edema volume was measured in arachidonic acid induced paw edema model. CG at 200, 400 mg/kg, p.o. showed significant inhibition of eosinophil, neutrophil and lymphocyte and total leukocyte count in bronchialveolar lavage (BAL) fluid ( $p < 0.05$ ). In BAL fluid, CG significantly reduced the nitric oxide and total protein levels ( $p < 0.05$ ). CG significantly restored the levels of GSH, SOD and LPO in lungs ( $p < 0.01$ ). CG at doses of 200, 400 mg/kg significantly inhibited OVA induced histological changes ( $p < 0.01$ ). CG significantly reduced the arachidonic acid induced paw edema volume ( $p < 0.05$ ). These results suggest that CG may prove to be potential therapeutic drug for treating asthma owing to its anti-inflammatory, anti-lipoxygenase and antioxidant activities.

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