

Antiinflammatory properties of betulinic acid and xylopic acid in the carrageenan-induced pleurisy model of lung inflammation in mice

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Margaritaria discoidea and *Xylopia aethiopica* are plants native in Ghana and used traditionally to treat different pathologies including inflammatory conditions. Betulinic acid (BA) and xylopic acid (XA) extracted from *M. discoidea* and *X. aethiopica*, respectively have been investigated for their anti-inflammatory effects. However, their specific effect on lung inflammation and their ability to modulate oxidative challenge under such circumstances is yet to be reported. The antiinflammatory effect of BA and XA was established by an *in vivo* assay using the carrageenan-induced pleural inflammation model in mice. Also, the ability of BA and XA to increase catalase, superoxide dismutase, glutathione levels and decrease lipid peroxidation level in reactive oxidative assays were assessed. In addition, the ability of XA and BA to prevent potential lung tissue damage was quantified. Pretreatment with BA and XA reduced significantly, signs of inflammation: neutrophil infiltration, oedema, and alveoli septal thickening in carrageenan-treated lung tissue. Additionally, BA or XA pretreatment lowered the degree of lipid peroxidation in the lung tissue while increasing the levels of catalase, superoxide dismutase, and glutathione *in vivo*. Comparatively, XA was more efficacious than BA in the prevention of lung tissue damage. BA and XA derived from *X. aethiopica* and *M. discoidea* possess antiinflammatory and *in vivo* antioxidant activities in mice pleurisy model. The effect of these compounds gives credence to the traditional use in the management of inflammatory conditions of the airway.