

## Anti-inflammatory activity of lycopene isolated from *Chlorella marina* on carrageenan-induced rat paw edema

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**ABSTRACT:**

Even though role of lycopene (all-*trans*) in controlling inflammation was reported, lycopene (*cis* and all-*trans* 40:60) isolated from green algae *Chlorella marina* was not reported so far. In this present study inflammation was induced in male *Sprague dawley* rats and edema was produced acutely by injecting 0.1 ml of carrageenan into the plantar region of the right hind paw of the rats subcutaneously. Intra peritoneal administration of algal lycopene (AL) at the dose of 10 mg/kg b.wt showed maximum (83%) inhibition on paw edema. The anti-inflammatory effect was significantly ( $P < 0.05$ ) higher in rats fed with algal lycopene when compared to the standard drug voveran (71%) and all-*trans* tomato lycopene (TL) (63%). Carrageenan induced rats showed elevated levels of cyclooxygenase (COX) and lipoxygenase (LOX) activities in monocytes. Myeloperoxidase (MPO) in serum, C-reactive protein (CRP) and ceruloplasmin activity in plasma was also high in carrageenan induced rats when compared to normal. Lycopene from *Chlorella marina* showed significant effect in reducing the above parameters to that of the standard drug while tomato lycopene showed less effect when compared to algal lycopene. Therefore algal lycopene from *Chlorella marina* would be recommended for the treatment of anti-inflammatory disorders.

**Keywords:**

Microalgae, *Chlorella marina*, lycopene, anti-inflammation.