ABSTRACT

*Nostoc sphaeroides* is a microscopic and filamentous fresh water blue green alga (cyanobacteria) that has a long history of use as food. It is a commercial alga, which is normally produced in ponds under controlled conditions. The present study deals with the antioxidant, anti-inflammatory, anti-hepatotoxic and anti-cancerous properties of *Nostoc sphaeroides*. The ethanol, methanol and aqueous extracts of *N. sphaeroides* showed superoxide and hydroxyl radical scavenging activity at low concentrations. The extracts of *N. sphaeroides* showed a significant protection against acute inflammation induced by the carrageenan and chronic inflammation induced by formalin in mouse paw edema. The ethanol extract of *N. sphaeroides* also showed protection against croton oil induced skin inflammation in mice. The protective effect of ethanol extract of *N. sphaeroides* against CCl₄ and paracetamol induced hepatotoxicity was also an interesting observations. Treatment with the ethanol extract could restore the CCl₄ and paracetamol induced decline of the hepatic antioxidants. The extract shows appreciable cytotoxic and anti-proliferative effect on cultured cancer cell lines on MTT assay.

The ethanol extract of *N. sphaeroides* showed anti-cancerous property against DMBA induced skin carcinogenesis in mice. It reduced the number of papilloma, increased the latency period and reduced the percentage of mice with papilloma in treated groups as compared to control. This extract also induced apoptosis in cultured cancer cell lines.

**Key Words:** *Nostoc sphaeroides*, Antioxidants, Inflammation, Hepatoprotection, Cancer, Apoptosis, Carcinogenesis, Hepatotoxicity and Hepatic enzymes