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IN VITRO SCREENING OF CYTOTOXICITY, ANTIOXIDANT AND ANTI-INFLAMMATORY ACTIVITIES OF THE FRESHWATER CYANOBACTERIUM *Oscillatoria* sp.

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Cyanobacteria is a highly diverse group of prokaryotes and are recognized as a potent source of biologically active compounds with antiviral, antibacterial, antifungal, and anticancer properties. In the present study, the cyanobacterium *Oscillatoria* sp. was isolated from the Senanayaka Samudraya reservoir, Sri Lanka. Methanol crude extract of *Oscillatoria* was used to screen antioxidant (DPPH, ABTS, phosphomolybdenum, nitric oxide scavenging, and reducing power assay), anti-inflammatory (inhibition of protein denaturation) and cytotoxicity effects (brine shrimp bioassay). The total phenolic and flavonoid contents in the methanol and n-hexane extracts were determined using Folin-Ciocalteu reagent and aluminum chloride (AlCl_3) method, respectively. The total phenolic contents (TPC) $43.25 (\pm 0.03)$ mg GAEg^{-1} extract and total flavonoid contents (TFC) $47.13 (\pm 0.01)$ mg qua (quercetin) g^{-1} of the *Oscillatoria* methanol extract was found to be higher in the n-hexane extract. The total antioxidant property of the methanol extract was detected as $13.24 (\pm 0.01)$ mg GAE g^{-1} at 1000 mg L^{-1} . Free radical scavenging properties of the extract for IC_{50} was 180 mg L^{-1} (DPPH) whereas IC_{50} values of nitric oxide scavenging assay was 125 mg L^{-1} . Ferric reducing property of the extract was $9.46 (\pm 0.01)$ mg GAE g^{-1} at 1000 mg L^{-1} . Anti-inflammatory properties of the crude extract showed $90.23 (\pm 1.48)\%$ maximum inhibition at 570 mg L^{-1} and IC_{50} value was found as $288.04 (\pm 2.78) \text{ mg L}^{-1}$ ($r = 0.946$) respectively. The lethal concentration of 50% of crude extract against brine shrimp assay at 6, 12 and 24 h were recorded as 2500, 1250 and 625 mg L^{-1} respectively. The result of the study revealed that *Oscillatoria* sp. contains active compounds which have the potential for pharmaceutical applications.

Keywords: *Oscillatoria* sp., DPPH, ABTS, cytotoxicity, anti-inflammatory