Determination of Antioxidative Properties in Selected Cyanobacteria: *Chroococcidiopsis* spp., *Gleocapsa* spp., *Merismopedia* spp., Isolated from Water Bodies in Sri Lanka

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Synthetic antioxidants like butylated hydroxyanisole (BHA) and butylated hydroxytoluene (BHT) are widely used in food industries. But some studies have indicated the adverse health impacts of consuming artificial antioxidants. On the process of discovering natural sources of antioxidants cyanobacteria takes a prominent place for its higher availability of bioactive components and the fast growth rate. This study was carried out to determine the antioxidative properties of *Chroococcidiopsis* spp., *Gleocapsa* spp., *and Merismopedia* spp., isolated from water bodies in Sri Lanka. Pure cultures were grown under laboratory conditions in BG11 medium and harvested after 1 month period. Separate extraction of water and 1:2 (V/V) methanol was carried out to each species to obtain the cell free extract. Cell free extract was examined for Total Phenolic Content (TPC), Total Flavonoid Content (TFC) and antioxidant capability by previously described methods. Water extraction of *Chroococcidiopsis* spp. had the highest TPC (2.26 ±0.09 mg GAE/g DW). Highest TFC (0.87±0.18 mg CE/g DW), highest 2, 2- diphenyl-1-picrylhydrazyl (DPPH) antioxidant activity (IC_{50}= 15.21 mg/ml) and Oxygen radical antioxidant capacity (ORAC) (112.50 ± 5.80 milimole TE/g DW) was discovered in methanol extract of *Merismopedia* spp. The water extract of *Chroococcidiopsis* spp. had the highest 2, 2'-azinobis-(3-ethylbenzothiazoline-6-sulfonate) (ABTS) antioxidant activity (13.28 milimole TE/g DW). Total flavonoid content was positively correlated ($p<0.05$) with ABTS and ORAC values, and negatively correlated ($p<0.05$) with DPPH values. *Merismopedia* spp. showed a higher antioxidant capacity than the other two species and all the three species of Cyanobacteria are rich sources of antioxidants and could be used to extract natural phenolic compounds for many industrial applications especially for food and pharmaceutical industries.

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