

***In vitro* ANTIOXIDANT ACTIVITY AND  $\alpha$ - AMYLASE INHIBITORY ACTIVITY OF  
METHANOLIC EXTRACT OF SRI LANKAN MARINE BROWN ALGAE  
*Chnoospora minima* (HERING 1841)**

**MDTL Gunathilaka<sup>1</sup>, D Peiris<sup>1#</sup>, P Ranasinghe<sup>2</sup>,  
KW Samarakoon<sup>3</sup> and DAS Elvitigala<sup>4</sup>**

<sup>1</sup>Department of Zoology, Faculty of Applied Sciences,  
University of Sri Jayewardenepura, Nugegoda, Sri Lanka

<sup>2</sup>Industrial Technology Institute, Halbarawa Gardens, Malabe, Sri Lanka

<sup>3</sup>National Science and Technology Commission,  
Dudley Senanayake Mawatha, Colombo, Sri Lanka

<sup>4</sup>Department of Sciences and Social Sciences for Nursing,  
Faculty of Nursing, University of Colombo, Sri Lanka

<sup>#</sup>*dinithi@sci.sjp.ac.lk*

*Chnoospora minima* (Herring) is a brown algae that belongs to Family Scytosiphonaceae. The current study investigated the total phenolic (TP), total flavonoid contents (TFC), antioxidants and anti-amylase activity of the methanolic extract of *C. minima*. The sample was extracted with 70% methanol and polysaccharides were separated. The resulting polyphenol portion was obtained for analysis. TP, TF contents were determined using standard methods. Antioxidant assays were conducted using ferric reducing antioxidant power (FRAP), ferrous iron chelating activity, DPPH and ABTS radical scavenging activity. Anti-diabetic potential was assessed using anti-amylase assay. TP and TF contents were 2950.72±87.09 ( $\mu\text{g}$  gallic acid equivalent/g of sample) and 39.36±7.81 ( $\mu\text{g}$  quercetin equivalents/g of sample) respectively. The free radical scavenging activity of the *C. minima* revealed that the reduction of DPPH occurred in a concentration-dependent manner with high reductions occurring at the highest concentrations.

The DPPH and ABTS radical scavenging activity of *C. minima* was 959.45±13.91 and 5734.22±120.11  $\mu\text{g}$  trolox equivalent for 1 g sample respectively. The IC<sub>50</sub> of ABTS and DPPH radical scavenging activity was 74.34±1.56  $\mu\text{g}/\text{ml}$  and 452.42±6.51  $\mu\text{g}/\text{ml}$  when compared to the standard trolox (IC<sub>50</sub>:8.68±0.06  $\mu\text{g}/\text{ml}$ ). The ferric reducing antioxidant power of *C. minima* was 293.32±59.66  $\mu\text{g}$  Trolox per 1g of sample. The ferrous iron chelating activity of the methanolic extract of *C. minima* was 278.22±5.62  $\mu\text{g}$  EDTA per 1 g of sample. The anti-amylase assay showed that, *C. minima* inhibited the activity of  $\alpha$ -amylase with IC<sub>50</sub> value of 17.93±0.19  $\mu\text{g}/\text{ml}$  and the percentage inhibition varied from 89.58 to 3.69. According to the results, methanolic extract of *C. minima* possessed high antioxidant and  $\alpha$ -amylase inhibition activity, thus increasing its potential therapeutic property.

**Keywords:** *Chnoospora minima*, Antioxidant,  $\alpha$ -amylase