

Mineral content and phytochemical properties of selected *Caulerpa* species from Malaysia

ABSTRACT

Seaweeds are abundant and are an important renewable resource for the coastal community since they are rich sources of minerals and natural bioactive compounds. Among them, the *Caulerpa* species under green seaweeds is widely consumed by locals in Southeast Asia. Edible seaweeds are often associated with various health benefits. However, in Malaysia, limited studies have been done on the mineral and antioxidant levels of seaweeds, especially for the *Caulerpa* species. Thus, the present study aimed to evaluate the variations of minerals and antioxidants of selected *Caulerpa* species in Malaysia. The samples were collected in two study sites, which were Blue Lagoon, Port Dickson and Merambong Shoal, Johor. Two species, *C. racemosa* and *C. manorensis* were recorded from Merambong Shoal, Johor, while five species were recorded namely *C. sertularioides*, *C. racemosa* var *lamourouxii*, *C. lentillifera*, *C. racemosa* var *cylindracea* and *C. racemosa* at Blue Lagoon, Port Dickson. Among all the *Caulerpa* species from both study sites, *C. manorensis* possessed the highest phosphorus content (139.54 mg/100g) while *C. racemosa* from both Merambong and Blue Lagoon Port Dickson's calcium (Ca) content was significantly highest at 2318.33 – 2406.66 mg/100g. All the *Caulerpa* species possessed high sodium (Na) content ranging 9338.30 – 21748.30 mg/100g. For micronutrients, the highest zinc content was recorded in *C. manorensis* (3.40 mg/100g) while the copper content was significantly highest in *C. racemosa* from Port Dickson (1.05 mg/100g). The methanol extract of *C. sertularioides* possessed phytochemical attributes of high antioxidant activity (DPPH EC₅₀ = 24.16 mg/mL) with a high FRAP value being recorded in *C. lentillifera* (27.09 mg TE/100g). The TPC and TFC were highest in *C. lentillifera* with 57.95 mg GAE/100g and 1506.41 mg QE/100g respectively. The present study revealed that *Caulerpa* species contained constituents with significant mineral compositions and phytochemical attributes suitable for pharmaceutical and nutraceutical uses.

Keyword: Seaweeds; Mineral content; Total flavonoid; Content total phenolic; Content antioxidant