

## **Prebiotic evaluation of red seaweed (*Kappaphycus alvarezii*) using in vitro colon model**

### **ABSTRACT**

Red seaweed (*Kappaphycus alvarezii*) cultivated from Sabah (RSS) and Langkawi (RSL) were digested using in vitro mouth, gastric and duodenal model. The digested seaweed then fermented in a pH-controlled batch culture system inoculated with human faeces to mimic the distal colon. Bacterial enumeration were monitored using fluorescent in situ hybridisation, and the fermentation end products, the short chain fatty acids (SCFA), were analysed using HPLC. Both RSS and RSL showed significant increase of *Bifidobacterium* sp.; from log<sub>10</sub> 7.96 at 0 h to log<sub>10</sub> 8.72 at 24 h, and from log<sub>10</sub> 7.96 at 0 h to log<sub>10</sub> 8.60 at 24 h, respectively, and shows no significant difference when compared to the *Bifidobacterium* sp. count at 24 h of inulin fermentation. Both seaweeds also showed significant increase in total SCFA production, particularly acetate and propionate. Overall, this data suggested that *K. alvarezii* might have the potential as a prebiotic ingredient.

**Keyword:** Bifidobacteria; Prebiotic; Colon model; Gut microbiota; Seaweed