



Nutritional evaluation of two marine microalgae as feedstock for aquafeed

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Abstract:

Using microalgae for animal nutrition provides an economically viable route for microalgae-based technological innovation, especially in combination with CO₂ fixation given current global warming. However, this technology still lacks sufficient evaluation for screening microalgae for specific animals; meanwhile, current studies show some prejudice regarding 'essential' or 'non-essential' ingredients. The results show that *Dunaliella salina* and *Nannochloropsis salina* were able to accumulate high protein (30%–57%) and lipid (20%–46%) content without affecting the performance of CO₂ fixation, which reached 0.28 and 0.23 g L⁻¹ day⁻¹ respectively. Both species exhibited high quality of lipids and proteins for *Penaeus monodon* based on the profiling. The essential fatty acid indexes (EFAI) for *N. salina* and *D. salina* were 3.81 and 9.02 respectively. Butyric acid was found to be present in both *D. salina* (12.03%) and *N. salina* (4.87%) based on the total fatty acids (FAs). The essential amino acid indexes (EAAI) for *D. salina* and *N. salina* were 2.23 and 1.29 respectively. Arginine was the most abundant essential amino acid (EAA) in both *D. salina* (10.83%) and *N. salina* (13.35%) on the basis of total amino acids (AAs). This study comprehensively compares the nutritional quality of the two commercial marine microalgae of *D. salina* and *N. salina* with the potential to be used as sustainable sources of lipids and proteins to reduce or even replace the traditional fish oil and fish meal in aquafeeds.



Biography:

Prof. Changan Xu has completed his PhD in 1988 from China Ocean University and now he is a research professor and deputy director of Engineering Research Centre of Marine Biological Resource Utilization, Third Institute of Oceanography, Ministry of Natural Resources, P.R. China, he is also an adjunct professor of Ningbo University and Jiangnan University. He was awarded for more than 40 research grants, and has published more than 70 papers in academic periodicals home and abroad. He is also a co-inventor of 12 issued patents, a compiler of 2 academic books.

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14th International Conference on Aquaculture & Marine Biology | July 20-21, 2020 | Barcelona, Spain

Citation: Changan Xu; Nutritional evaluation of two marine microalgae as feedstock for aquafeed, Changan Xu - Third Institute of Oceanography - China; Aquaculture & Marine Biology 2020; July 20-21, 2020; Barcelona, Spain.