

18. Prokaryotic and eukaryotic microbial community dynamics in biofloc supplemented with non-starch polysaccharides

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The incorporation of non-starch polysaccharides (NSP) in the diet can regulate the microbial community in a biofloc system and create an ecologically friendly condition for shrimp growth. However, the effect of dietary NSP supplementation on the biofloc microbial community composition remains largely unexplored. We investigated the effect of a commercial-like diet (CONdiet) and a CONdiet diluted with 40% NSP in the form of wheat bran (NSPdiet) on the biofloc prokaryotic and eukaryotic microbial communities. Both diets were fed at isonitrogenous to Pacific white shrimp (*Litopenaeus vannamei*) for 42 days, and sampling of the biofloc for microbial composition was performed every two weeks. Results showed that diet did not affect the alpha diversity of the tested microbial communities. Regarding the beta diversity analysis, diet significantly affected the prokaryotic community at the end of the culture period. Moreover, several genera were enriched in the NSPdiet, such as the prokaryotes *Muricauda*, *Pirellula*, *Cyanobacteriaceae*, and the eukaryotic *Trebouxiophyceae* and *Suillus*. Moreover, NSPdiet biofloc microbial communities exhibited predicted functionalities that were more abundant in carbohydrate metabolism, and, more specifically, of pentose, fructose, mannose, and galactose. The results provide a basis for the applicability of controlling microbial composition and functionalities by supplementing the NSP in the diet.