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RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

Title: **Comparative analysis of water quality in *Litopenaeus vannamei* ponds and nutritional quality of shrimp muscle**

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Abstract: From May to September in 2010, water quality parameters such as water temperature, total dissolved salt, dissolved oxygen, pH, transparency, nitrite nitrogen, ammonia nitrogen, nitrate nitrogen, total nitrogen, reactive phosphorus, chlorophyll-a and biochemical oxygen demand were analyzed in 22 *Litopenaeus vannamei* ponds with different culturing methods in Fengxian District, Shanghai. Water used for Farm No. 1 was natural fresh water which had been precipitated before being introduced to the ponds. Mixed salt were added to the freshwater for culturing shrimp in Farm No. 2. Results were as follows: water temperature, dissolved oxygen and pH didn't change dramatically and could match the demand of *Litopenaeus vannamei.* The Proportion of nitrate nitrogen in ponds to TIN was the highest, the ratio of ammonia nitrogen to TIN increased with time extension, and that of nitrite nitrogen to TIN increased obviously in the later period of the culture cycle. Contents of reactive phosphorus decreased gradually while the total phosphorus increased in the whole process of culture. Biochemical oxygen demand and chlorophyll-a also increased gradually with the shrimp growing up. Muscle nutritional quality of *Litopenaeus vannamei* from the two farms were analyzed and the result were as follows: contents of crude protein and crude fat of shrimp muscle in Farm No. 1 were 16.30% and 1.42% respectively, lower than those in shrimp muscle from Farm No. 2 which were 18.30% and 1.61%. Content of total amino acids in

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shrimp from Farm No. 1 was 23.27%, and the essential amino-acid was 9.09%. While those in shrimp from Farm No. 2 were 27.52% and 10.74% respectively. Contents of flavor amino acids in shrimp Farms No. 1 and 2 were 8.52% and 10.16% respectively.

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