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Applied Free Living Nematode as Bioindicator to Assess Environmental Impact of Dam Construction in Ba Lai Estuary, Vietnam

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Abstract : The Ba Lai dam construction was created in 2000 in the Ba Lai estuarine river, Ben Tre province, Vietnam to prevent marine water infiltration, drainage and de-acidification, and to build a reservoir of freshwater for land reclamation in the Ba Lai tributary. However, this dam is considered as an environmental failure for the originally connected estuarine and river ecosystem, especially to bad effect to benthic fauna distribution. This research aims to study applying free living nematode communities' distribution in disturbance of dam construction as bioindicator to detect environmental impact. Nematode samples were collected together measuring physical–chemical environmental parameters such as chlorophyll, CPE, coliform, nutrient, grain size, salinity, dissolved oxygen, turbidity, conductivity, temperature in three stations within three replicates. Results showed that free living nematode communities at the dam construction was significantly low densities, low diversity (Hurlbert's index, Hill diversity indices) and very low maturity index in comparison with two remaining stations. Strong correlation of nematode feeding types and communities' structure was found in relation with sediment grain size and nutrient enrichment such nitrite, nitrate, phosphate and pigment concentration. Moreover, greatly negative link between nematode maturity index with nutrient parameters can serve as warning organic pollution of the Ba Lai river due to dam construction.

Keywords : Ba Lai, dam impact, nematode, environment
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