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Potential impact of varying climate on oyster production and utilization in a tropical coastal wetland in Ghana

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The Whin estuary has an active women oyster fishery that provides nutritional and financial gain to the people. It's feared that this ecosystem could be lost in the event of climate change because of its close tie to the sea. This could be magnified by land use activities due to potential impact on food security, livelihood and water. Historic and primary catch data of West African oyster (*Crassostrea tulipa*) were used as surrogates of the ecological status and sustainability of the water for fish farming using triangulation approach. Focus group discussions, key informant interview, field measurements and observations were employed. Ranking of identified land use stressors were done using the Battisti model. The peak season of catch was from January to May (530-540 kg/day \pm 0.01) and the off season was from June to August (200-210 kg/day \pm 3.33). Rainfall, temperature, drought, mangrove cutting and sand winning were the threats to the fishery. 16.67% of the harvesters perceived its ability to be farmed, 68% of the fishers do not see it as a species that can be farmed and 15.33% have no idea. The fish is a good source of minerals, protein and carbohydrates. The percentage ash, moisture, calcium, iron, carbohydrates and protein were 10.89 \pm 2.17, 79.03 \pm 0.97, 22.98 \pm 0.78, 0.03 \pm 0.001, 8.67 \pm 0.24 and 43.27 \pm 0.35 respectively. There is need for sensitization on adaptation strategies to varying climate and the potential use for farming to coastal communities to improve livelihoods.

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Performance of *Labeo rohita* larvae fed with raw seeds and various extractions of seeds of *Achyranthes aspera* and challenged with *Aeromonas hydrophila*

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The present study evaluated the efficacy of dietary doses of various extractions of seeds of *Achyranthes aspera* powder on immunological parameters and disease resistance against the bacterial pathogen *Aeromonas hydrophila* infections in Indian major carp, *Labeo rohita* larvae. Larvae were fed with dry diet containing raw seeds of *Achyranthes aspera*, extractions of seeds of petroleum-ether extract (crude extract), and different percentage of petroleum ether-chloroform eluted fractions. Control diet was prepared without seed or extract of seed. Immunological (bactericidal, myeloperoxidase, NOS and lysozyme activity) parameters of fishes were examined at 41 days of feeding. Fishes were challenged with *A. hydrophila* 41 days post feeding and mortalities (%) were recorded over 7 days post-infection. The results demonstrate that fishes fed with seeds and various extractions of seeds of *Achyranthes aspera* showed enhanced bactericidal, myeloperoxidase, lysozyme activity, and total tissue protein level ($p < 0.05$) compared with the control group. The survivability was higher in experimental diets than the control group. Dietary seeds of *Achyranthes aspera* showed significantly ($P < 0.05$) higher protection against *A. hydrophila* infection than control. The results suggest that the seeds of *Achyranthes aspera* have a stimulatory effect on immunological parameters and increases disease resistance in *Labeo rohita* fingerlings against *A. hydrophila* infection.

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