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Discordance in the identification of juvenile pink shrimp (*Farfantepenaeus brasiliensis* and *F. paulensis*: family *Penaeidae*): An integrative approach using morphology, morphometry and barcoding

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Differences in width and/or shape of the dorsal furrow on pleonite six has traditionally been the primary character used to discriminate the coexistent commercial pink shrimps *Farfantepenaeus brasiliensis* and *F. Paulensis*. During juvenile stage, however, discrimination is unreliable. We aimed to test the hypothesis that taxonomic morphological characteristics traditionally used to discriminate these species were not effective for juveniles. Molecular analyses (*COI* gene) showed that traditional characteristics did not allow for the correct identification of juveniles of these species. Only 64% of juveniles identified a priori based on traditional morphological traits and subsequently verified molecularly were identified correctly. After molecular identification, we searched for new morphological traits that could be used for reliable identification of juvenile and adult stages using morphometry and comparative morphology. We identified a new morphological trait that will aid in the discrimination of juveniles of *F. brasiliensis* and *F. paulensis*. Contrary to our expectations, the characters identified by morphometricanalysis were subtle and difficult to apply in field identification situations. When analyzing the external morphology of juveniles, it was possible to identify differences between the species in the anterior margin of gastrofrontal carina in relation to the rostrum teeth. In addition to corroborating the difficulty in identifying these two species, our study confirms the importance of the association between molecular and comparative morphology analyses in a fisheries and biodiversity context. Furthermore, we extended the geographic distribution of *F. subtilis* through a new record from the southern coast of São Paulo State.

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Reclamation of saline and alkaline soils through aquaculture: A review and prospects for future research

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Secondary salinization of agricultural lands in any irrigation projects of the world is the major issue in the recent past. Currently, it is estimated that the 954 mh of saline and alkaline soil is present in the world. Thousands of hectares of land are getting added every year. In India, out of 142.80 million hectare (mh) cropped area, 42.10 mh is an irrigated area of which, more than 9 mh (about 16.6%) of land is found to be alkaline/saline. Due to continuous utilization of same land for same agricultural activities, excessive usage of fertilizers and water, most of the soils have become alkaline, saline or water logged. These lands are low productive and at times totally unfit for agricultural activities. These soils may or may not possess good physical condition, but plants may suffer from its inability to absorb water from salty solution. Plants suffer from dehydration and loose water to the soil, shrink and resulting death of plant. This process is called plasmolysis. It is the fact that soil is an independent, dynamic inorganic body of nature that acquires properties in accordance with forces which act upon it. Aquaculture is one of the solutions to utilize such problematic soils for food production. Excess salts gets into impoundments and management of salt is easier in water than in the soil. Due to high organic input in aquaculture such as feed, manure and continuous deposition of fecal matter, pH of the soil gets reduced and over the period of time such soils can be put back into the original activity. Under National Agricultural Development Program (NADP), the project was implemented in 258 villages of Mandya district, Karnataka state, India and found that these lands can be effectively utilized for fish culture and increase the proteinacious food production by many folds.

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