

TITLE: EVALUATION OF PATHOGENICITY OF BACTERIAL STRAINS BELONGING TO GENUS *Pseudomonas* ISOLATED IN CARACINICULTURE ENVIRONMENT.

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ABSTRACT:

Aquaculture is the fastest growing animal protein production sector in the world, accounting for about 90% of world seafood production. *Pseudomonas* are bacteria common inhabitants of the aquatic environment, being commonly associated to aquatic organisms, such as shrimps and fish. They are gram-negative rods, capable of causing diseases in immunocompromised individuals. They are extremely versatile metabolically and adapt to a variety of conditions, and can survive in different types of soil, rivers, lakes and wastewater. The objective of the present research was to identify strains of *Pseudomonas* with virulence profiles, originated from shrimp farming environments, in the States of Ceará, Piauí and Rio Grande do Norte. Samples were collected from two farms in the State of Ceará (CE), two of Piauí (PI) and two of Rio Grande do Norte (RN). From each farm, samples with the following distribution were analyzed: water and sediment, in the supply channel, drainage channel, shrimp pond and estuary. Samples of shrimp, muscle, hemolymph and hepatopancreas. A total of 408 strains were identified through phenotypic evidence, including 38 *Pseudomonas* strains, 15 from the State of Ceará, 21 from Piauí and 2 from Rio Grande do Norte. The presence of pathogenic potential of virulence, class 1 integrons genes, cassette genes and drug resistance genes to tetracycline and oxytetracycline were also verified. Twenty-three strains were selected for the virulence factor tests, showing the highest percentage of positivity of the strains: elastase and caseinase (43%), followed by β -hemolytic activity (26%) and phospholipase (2%). No strain was positive for gelatinase and lipase. From these strains, fifteen proceeded to verification of the presence of integrons, showing positivity for integron class 1 genes, and cassette genes, using the following primers: in (conserved and variable integron region) 73% of strains, int1 (class integrons 1 of integrins) 100%, 3'CS of integron of class 1 composed by the genes *sul1* (resistance sulfazotrim) 100%, and *qacE Δ 1* (resistance to quaternary ammonium) 100% and the cassette gene *blaP1* (resistance for β -lactam) 6%. For the tetracycline and oxytetracycline drug resistance genes the results were: no strain showed positivity for the tet (M) and tet (S) genes, whereas all were positive for the two otr (A) and otr (B).

Keywords: pathogenicity, shrimp, estuary, cassette genes

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