

TITLE: ENZIMATIC POTENCIAL OF BACTERIA FROM SHRIMP FARMING

AUTHORS: RAMOS, J.L.; PACHECO, K.D.; FONTES, L.D.; CESAR, D.E.; WASIELESKY JR, W.; APOLÔNIO, A.C.M.

INSTITUTION: UNIVERSIDADE FEDERAL DE JUIZ DE FORA, JUIZ DE FORA, MG (RUA JOSÉ LOURENÇO KELMER, S/N – CAMPUS UNIVERSITÁRIO, CEP 36036-900, JUIZ DE FORA – MG, BRAZIL)
UNIVERSIDADE FEDERAL DO RIO GRANDE, RIO GRANDE, RS (RUA DO HOTEL, 02 – ESTAÇÃO MARINHA DE AQUACULTURA, CEP 96210-030, CASSINO, RIO GRANDE – RS, BRAZIL)

ABSTRACT:

The use of microorganisms with enzymatic capacity in biotechnological processes is a positive strategy within industries of various strands. The bacterial's enzymes could accelerate chemical reactions and also help regulate the metabolism of living beings such as plants, animals and also other microorganisms. This study aims to evaluate the enzymatic potential of amylases and lipases of five bacteria isolated from *Litopenaeus vannamei* culture in biofloc systems (BFT). The isolates were inoculated in a modified solid media supplemented with substrates that allowed the evaluation of starch and lipids degradation. After incubation, colonies and clear zones formed around of colonies were measured to obtain the enzymatic index (IE), by the ratio between these two measures. These five bacterial strains previously demonstrated antagonistic substances expression against *Enterococcus faecalis*, *Staphylococcus aureus* and *Aeromonas hydrophila*. In the current study, all of samples were lipases and four were amylases producers. It was observed intermediary enzymatic index (near 2) for amylase and high index for Lipase (IE \geq 2). These four samples are interesting as an additive in BFT systems, since they could corroborate in the digestive processes of the *Litopenaeus vannamei* and in its whole metabolism. In general, bacteria with such enzymatic potentials may be useful on shrimp production in biofloc system, where they may be used as probiotics. The strains tested here are specially by the previous antagonistic profile against important pathogenic bacteria for man and shrimp. A strain came from these specific system could lead to the improve the healthy production, besides being useful as strategy against the abusive use of antibiotics. The potential of enzymes from microorganisms is in high growth on others areas and these can and are used on a large scale such in textile, pharmaceutical, food industry, etc. The next step could be on aquaculture system.

Keywords: bioflocs, biotechnology, bacteria enzymes.

Development Agency: CNPq, FAPEMIG