

**TITLE:** INFLUENCE OF POLYPYRROL ON BIOFILME FORMATION IN *Aeromonas* spp.

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**ABSTRACT:**

*Aeromonas* spp. is one of the main agents that cause economic losses in fish farming. This opportunistic pathogen may cause tissue necrosis and sepsis in immunosuppressed aquatic animals. The pathogenicity is linked to some virulence factors, such as the formation of biofilm, which is a protective structure formed by these bacteria. The indiscriminate use of antimicrobials contributed for the development of resistant bacteria and the failure in the treatment of several infections. Moreover, when they are associated with biofilm, the infections are even more resistant, since the matrix of extracellular polymers formed by the bacteria difficult the access of the antimicrobials. In this context, the search for viable alternatives to combat bacterial resistance has been constantly explored. Polypyrrole (PPy) is an electrically conductive and biocompatible polymer, which has been studied for its antimicrobial activity. Thus, this study aimed to evaluate the susceptibility profile of *Aeromonas* spp. isolates to PPy as well as its ability to interfere in bacterial motility. In addition, to evaluate the biofilm formation capacity of *Aeromonas* spp. associated with PPy. Samples of *Aeromonas* spp. obtained from tilapia (*Oreochromis niloticus*) were used. The antibacterial activity was determined in 17 samples through broth microdilution method, obtaining concentrations of 3.9 to 500 µg / mL. The motility assay was performed on a semi-solid agar, in which only the bacteria that presented the *fla* gene (n = 2) were used. In the same way, it was evaluated if the concentrations of 0 to 3% of PPy interfered on the same. It was also checked whether the substance had the ability to affect biofilm formation through of optical density readings in 6 samples. The results were evidenced by scanning electron microscopy. The polypyrrole caused the death of all the isolates tested at a concentration of 125 µg / mL, according with the images obtained by scanning electron microscopy. This compound reduced bacterial motility with concentrations of 0.25 to 3%, and for the biofilm production, there was no interference. Thus, use of PPy as a bactericidal agent has the potential to reduce the impact of infections caused by *Aeromonas* spp. avoiding economic losses in fish farming.

**KEY WORDS:** motility, pisciculture, polymer, resistance

**ACKNOWLEDGMENTS:** Fundação de Amparo à Ciência e Tecnologia do Estado de Pernambuco (FACEPE)