

Pathogenicity and Strategies of Vaccination of Seabass from Fry to Fingerling Stage by Bivalent Vaccine of *Vibrio anguillarum* and *Vibrio alginolyticus*

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ABSTRACT

Vibrio anguillarum is one of the most pathogenic bacteria affecting fish farms in Egypt, especially *Oreochromis niloticus*. In this study, *Vibrio aerogenosa* was isolated during an outbreak among cultured *Oreochromis niloticus*. We used a bivalent vaccine for controlling *Vibrio anguillarum* and *Vibrio alginolyticus*. Around 50, 100, 200 l of formalin killed bacterial cells were injected (Intraperitoneal) to three different sizes (10-20, 21-40, 41-60g) of seabass fishes respectively and control series as saline were maintained separately. The Relative Percentage Survival (RPS) for vaccinated fishes was 70, 80, and 64, respectively and the vaccinations for 20-30 g fishes stay alive. These results stated that the vaccination for fishes with 20-30 g size may fabricate good immune response.

Keywords: Pathogenicity, Vaccination, Seabass, *Vibrio*.

INTRODUCTION

Fish diseases due to bacterial infections are the major problems in aquaculture as it found naturally in the fish environment and under certain stress condition causes severe economic losses to fish farms (Kumar et al., 2007).

Vibriosis is one of the most prevalent fish diseases caused by bacteria belonging to the genus *Vibrio*. *Vibrio alginolyticus*, *V. parahaemolyticus*, *V. cholera* (non-O1), *V. vulnificus* (Biotype 2), *V. anguillarum*, *V. ordalii*, *V. damsela*, *V. carchariae* and *V. salmonicida* are considered to be

predominant fish pathogens (Kim and Bang, 2008; Kannapiran et al., 2009).

The genus *Vibrio* contains five species which have been described as etiological agents of diseases in fish in Egypt and moreover, it is a septicemic disease characterized by fin rot, usually associated with stress and improper management (Azza et al., 2002).

Previously, treatment of diseases has focused on chemicals and antibiotics. Treatment of affected fish with antibiotics is effective but gives rise to problems such as accumulated resistance in the bacteria,

خطة تحصين القاروص من مرحلة الذريعة إلى الإصبغيات باستخدام التحصين الثنائي
لعترتي الفبريو أنجيوليرم والفبريو ألجينوليتيكس

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الفيبريو أنجيوليرم يعتبر أحد أنواع البكتيريا الضارة جداً والتي تصيب أسماك
المزارع في مصر في وغالبا ما يتم النجك فيه باستخدام استخدام المضادات الحيوية والتي
بعد فترة يحدث لها مقاومة من الفيبريو. لذلك تم استحداث لقاح مزدوج من البكتريا الميتة
والذي يعطى بالحقن لاسماك القاروص ، وأوضحت نتائج تلك الدراسة أن استخدام اللقاح
يقلل من معدلات الإصابة بالفيبرو انجيوليرم او الفيبرو الجينو ليتكس ويحسن من كفاءة
الاسماك ومعدلات الانتاج .