

# BIOCHEMICAL PROPERTIES AND ANTIBIOTIC SENSITIVITIES OF *VIBRIO ALGINOLYTICUS* ISOLATED FROM EUROPEAN SEA BASS LARVAE (*DICENTRARCHUS LABRAX*, L.) IN TURKEY

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## Abstract

A *Vibrio alginolyticus* infection in European sea bass (*Dicentrarchus labrax*, L.) and also antibiotic properties of isolated strains were described in this study. All isolates were resistance to ampicillin and trimethoprim and sensitive to flumequine and oxolinic acid tested. These results are discussed in the light of treatment of vibriosis already reported in moribund sea bass and other marine fish species.

**Keywords :** Antibiotics, Aegean Sea, Aquaculture, Bacteria.

Aquaculture is the growth of fish, molluscs, crustaceans and aquatic plants [9]. From 1970 to today, aquaculture has been the most rapidly growing sector of agriculture, when compared with aquatic products from fishing and meat products from land animals [8-9]. In the Mediterranean Region, aquaculture has been growing from yearly. Total aquaculture production reached 1 266 959 tonnes in 1999. When the present aquaculture in Turkey is evaluated, Turkey has potentially rich inland and marine aquatic resources with coastal lines (8333 km), economic marine areas (151080 km square), natural lakes (1 million ha) and dam sources (500 000 ha) [13]. In Turkey, the first rainbow trout farm was set in the end of 1960s. However, the first gilt-head sea bream and European sea bass production units did not start, until 1985 [13, 16]. Total aquatic production with 3075 tonnes in 1986 was estimated as 63,000 tonnes in 1999; however, it was 79,031 tonnes in 2002 [13-16]. Commercially cultured marine species in Turkey are gilt-head sea bream (*Sparus aurata*) and European sea bass (*Dicentrarchus labrax*) [5, 20]. According to the bacterial diseases of these species, earlier bacteriological studies of moribund sea bass documented of pasteurellosis [10-11, 15, 19] vibriosis [12, 14] and *Aeromonas hydrophila* [18]. The aim of this study is to evaluate antibiotic resistance/susceptibility of *Vibrio alginolyticus* isolated from moribund sea bass larvae. In April of 2005, sea bass (*Dicentrarchus labrax*) (0.5-1.0 g) mortalities were noted at a daily rate of %3 in a sea bass and gilt-head sea bream farm located at Aegean Region of Turkey. Water temperature was 21.5 °C-23 °C; the salinity of water was ‰ 17. Ten moribund fish, weighing 0.5-1.0 g, were selected from one of square concrete ponds and autopsied under aseptic conditions. Samples taken from visceral organs, i.e., the spleen, liver, and kidney, were inoculated for bacterial isolation on Trypticase Soy Agar (TSA; Merck, Germany). Plates were incubated at 24 °C for 72 h. Biochemical and physiological tests were carried out on the isolates according to standart tube and petri procedures. The disk diffusion method was used to test the susceptibility of the isolates to antibiotics on Mueller-Hinton agar (Merck) by adding 1 % NaCl [1, 4, 7, 17]. Flumequine, kanamycin, ampicillin, oxolinic acid, tetracycline, trimethoprim, c. sulphonamide, erythromycin disks were used. Affected fish showed ulcers on the dorsal part of the body, haemorrhages on the operculum, whitish colour on the abdomen. Some of the moribund fish intestine were out of the anus. Internal lesions included enlargement of the spleen, paleness of the liver and kidney, haemorrhages in the intestine. The gastro-intestinal tract was empty. After incubation, the bacterial strains isolated from moribund fish (n=10) produced cream-coloured, convex colonies. Isolates were Gram-negative, cytochrome oxidase positive, fermentative and sensitive to vibriostatic agents. Isolates produced yellow colonies on TCBS (Thiosulphate-Citrate-Bile-Sucrose agar, Merck). The isolated strains had similar phenotypic properties to other *Vibrio alginolyticus* strains [2-3, 6]. According to the results of antibiotic tests, all of the isolates were resistance to ampicillin and trimethoprim. They were susceptibility to flumequine and oxolinic acid.

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