Isolation of *Citrobacter braakii* from Rainbow Trout (*Oncorhynchus mykiss*)

S. Altun¹*, M. Duman¹, A.G. Buyukekiz¹, M.O. Ozyigit², S. Karatas³, E. Turgay³

¹ Department of Aquatic Animal Disease, Faculty of Veterinary Medicine, Uludag University, 16059 Bursa, Turkey
² Department of Pathology, Faculty of Veterinary Medicine, Uludag University, 16059 Bursa, Turkey
³ Department of Fish Disease, Faculty of Fisheries, Istanbul University, 34470 Istanbul, Turkey

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Abstract

About 100 moribund rainbow trout fry (2-3 g) were brought to the laboratory for examination after an epizootic of citrobacteriosis on a farm in Bursa Province, northwest Turkey, in late March 2012. The dominant bacterium was identified by biochemical, API 20E, and VITEK II rapid tests. Colonies grown on xylose lysine deoxycholate (XLD) agar were yellow with an intensive yellow center and a surrounding zone of yellow precipitation. The fish displayed hyperemia of the mouth, dark color, bilateral exophthalmia, pale liver, and necrotic kidney symptoms. The possible etiologic agent was identified by 16S rRNA gene sequencing as *Citrobacter braakii* (GenBank accession number JX518488). Histopathological examination of the diseased fish revealed vacuolar degeneration in the liver epithelium, round and limited focal necrotic areas in the liver, desquamation in the intestine epithelium and glands that settled in the propria mucosa, and vacuolar degeneration of the intestinal epithelium. According to ATB VET and antibiogram disc diffusion, the isolated *C. braakii* strain was sensitive to apramycin, cefoperazone, chloramphenicol, colistin, gentamicin, nitrofurantoin, spectinomycin, and streptomycin but resistant to amoxicillin, amoxicillin/clavulanic acid, cefalotine, cotrimoxazole, enrofloxacin, erythromycin, florfenicol, flumequine, fusidic acid, kanamycin, lincomycin, metronidazole, neomycin, oxacilline, oxolinic acid, oxytetracycline, penicillin, pristinamycin, rifampicin, sulfamethizole, sulfamethoxazole-trimethoprim, tetracycline, and tylosin. We found the bacteria sensitive to 4 mg/l doxycycline in the ATB VET test strip but resistant to 30 μg/l doxycycline in the antibiogram disc diffusion test.

* Corresponding author. Tel.: +90-224-2941264, fax: +90-224-2941202, e-mail: saltun@uludag.edu.tr