Isolation and Characterization of *Edwardsiella ictaluri* from Cultured Yellow Catfish (*Pelteobagrus fulvidraco*)

Geng Yi¹,², Wang Kaiyu¹,²*, Chen Defang¹, Fan Fanling¹, Huang Yidan¹

¹ Research Center of Fish Disease, Sichuan Agricultural University, Ya’an, Sichuan 625014, P.R. China

² Key Laboratory of Animal Disease and Human Health of Sichuan Province, Sichuan Agricultural University, Ya’an, Sichuan 625014, P.R. China

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**Abstract**

Red-head disease (RHD) is one of the most common diseases of unknown etiology in cultured yellow catfish. The purpose of this study was to elucidate the etiology of RHD in recent outbreaks in Sichuan Province, China. Two dominant bacteria (CHNCY001 and CHNCY002) were isolated from RHD in Xinjin and Meishan Counties. Characteristics found by morphological, physiological, and biochemical tests showed that the two strains were the same and similar to *Edwardsiella ictaluri*, but had atypical characteristics in that they tested positive for urease and methyl red. Sequencing of the 16S rRNA gene showed that the strains were highly homogeneous with *E. ictaluri*. Based on the phenotypic characteristics and phylogenetic analysis by 16S rRNA, both isolates were identified as *E ictaluri*. Koch’s postulates were fulfilled using the strains in healthy yellow catfish. Mortality was 100% when the isolates were injected intraperitoneally (2.7 and 1.8 × 10⁶ cfu/fish) and 60-65% when catfish were immersed in the isolates (3.4 and 4.2 × 10⁷ cfu/ml). The isolates were sensitive to chloramphenicol, ciprofloxacin, doxycycline, florfenicol, fradiomycin, and lomefloxacin, but not to acetylspiramycin, ampicillin, azithromycin, medemycin, novobiocin, oxytetracycline, sinomin (SMZ/TMP), and sulfamethoxazole.

* Corresponding author. Address: 46 Xinkang St., Ya’an, Sichuan 625014, P.R. China, tel.: +86-835-2885910, fax: +86-835-2885302, e-mail: kywang@sicau.edu.cn, kywangsicau@126.com