

REVIEW

Standard protocols for antimicrobial susceptibility testing of *Vibrionaceae* isolated from aquatic animals

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Abstract

A review of the relevant literature has shown that it is safe to recommend that the antimicrobial susceptibility of the species of the *Vibrionaceae* most commonly isolated from aquatic animals can be established using internationally standardised protocols that specify the use of Mueller-Hinton media that has not been supplemented with additional NaCl.

Introduction

The OIE Aquatic Animal Health Code (<http://www.oie.int/en/international-standard-setting/aquatic-code/access-online/>) recommends that, if the data produced in programmes for monitoring and surveillance of antimicrobial susceptibility are to be comparable, it is essential that standardised and internationally harmonised susceptibility test protocols be used to the greatest extent possible (Smith et al., 2013).

The CLSI has published guidelines for the antimicrobial susceptibility testing of bacteria isolated from aquatic animals (CLSI, 2006; CLSI, 2014a). With respect to the testing of the *Vibrionaceae* these guidelines recommend that, for those that are facultative halophiles, disc diffusion tests can be performed using Mueller-Hinton agar (MHA) and MIC tests can be performed

using cation adjusted Mueller-Hinton broth (CAMHB). For those *Vibrio* spp. that are obligate halophiles CLSI suggest that susceptibility tests should be performed on MHA or in CAMBB modified by the addition of 1% NaCl.

Quality control criteria are an essential component of any CLSI standardised testing protocol. The acceptable ranges of results for reference strains, which provide these criteria, have been developed for test protocols that specify the use of unmodified MHA and CAMHB and incubations at 35°C (CLSI, 2017), and at 28°C and 22°C (CLSI, 2014b). The acceptable ranges for tests using NaCl supplemented media have not yet been established. As the addition of NaCl has been shown to affect the data generated from susceptibility tests (Douglas et al., 2006) the acceptable ranges established for protocols using

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