NOTE

Comparison of two methods for detection of *Kudoa* spores

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Abstract
The genus *Kudoa* Meglitsch, 1947 (Cnidaria; Myxozoa) encompasses myxosporeans found worldwide. Kudoid spores in muscle can produce noticeable cysts or cause post-mortem myoliquefation. We report a comparison of the efficacy of two techniques for the detection of kudoid spores in fish without visible cysts or muscle softening.

The genus *Kudoa* Meglitsch, 1947 (Cnidaria; Myxozoa) comprises a great number of myxosporean species found worldwide that develop in muscle host tissue and parasitise a wide variety of marine fishes. Eiras et al. (2014b) reported 95 nominal species and since then about a dozen new ones, mainly from muscle tissue, have been reported (Kristmundsson and Freeman, 2014; Mansour et al., 2014, 2015; Shirakashi et al., 2014; Abdel-Baki et al., 2016; Azevedo et al., 2016; Kasai et al., 2016 a, b; Shin et al., 2016).

Some of the *Kudoa* species found in host musculature produce noticeable cysts or cause post-mortem myoliquefation, sometimes referred as soft-flesh disease, representing a concern for aquaculture and commercial fisheries (Langdon, 1991; Moran et al., 1999; Yokoyama et al., 2004; Yokoyama and Itoh, 2005). Additionally, potential public health risks such as allergic reactions and several digestive pathologies related to ingestion of these parasites have been reported by several authors (Velasco et al., 2007; Feist, 2008; Kawai et al., 2012; Suzuki et al., 2015; Yahata et al., 2015). Therefore, the detection of *Kudoa* species in cultured and wild fish is relevant considering the impacts on aspects of economic and human health.

The most usual method of detection of *Kudoa* spores in muscle, and the less time consuming, is squashing a portion of muscle between two glass plates followed by examination under an optical microscope (Dyková et al., 2009; Eiras et al., 2014a; Shirakashi et al., 2014; Oliveira et al., 2015; Suzuki et al., 2015; Kasai et al., 2016a, b). This method is a good indicator for moderate to heavy infections, but it is not satisfactory for the detection of low infection levels, especially if macroscopically visible changes are not present.

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