
Development of a non-lethal method to detect the parasite *Anguillicola crassus* for the conservation of the endangered European eel.

Thibaut Jousseau^{*1}, Sophie Launey¹, Anne-Laure Besnard², Laurent Beaulaton³,
Agnès Bardonnnet⁴, and Jean Marc Roussel¹

¹Institut National de la Recherche Agronomique (Pôle AFB-INRA) – Institut National de la Recherche Agronomique - INRA : Pôle AFB-INRA – 65, rue de Saint Briec 35042 Rennes, France

²Institut National de la Recherche Agrocomique (Pôle AFB-INRA) – Institut National de la Recherche Agronomique - INRA : Pôle AFB-INRA – 65, rue de Saint Briec 35042 Rennes, France

³Agence Française pour la Biodivzersité (AFB) – AFB, France : Pôle INRA-AFB – 65, rue de Saint Briec 35042 Rennes, France

⁴Institut National de la Recherche Agronomique (INRA) – Institut National de la Recherche Agronomique - INRA – Inra Nouvelle-Aquitaine-Bordeaux Aquapôle Quartier Ibarron 64310 Saint-Pée-sur-Nivelle, France

Abstract

Anguillicola crassus is a parasite nematode of the eel swimbladder, endemic in East Asia. Since its recent introduction in Europe, *Anguillicola crassus* became a predominant parasite in the European eel, *Anguilla anguilla*. The *A. crassus* life cycle depends upon predatory-prey interactions. Eels are infected by ingestion of the third-stage juveniles present in intermediate hosts (copepods, fish...). Then the ingested parasite will infest its host's swimbladder until maturation. Parasites eggs are then, released in the eel's intestinal tract and are then evacuated with feces in the water. This nematode may impair the capacity of European eels to complete the spawning migration and shorten the life cycle. So far, the only method to detect this infection implies dissection of the swimbladder, which is lethal for the fish. The present study describes the development of a new detection method from eel's feces using molecular biology protocol. Using parasite-specific molecular markers, we aimed to detect the parasite's DNA in eel's feces. Positive results showed that the method allows a non-lethal way of assessing the prevalence of *A. crassus* from the feces with comparable or better rates to swimbladder dissection. However, this method has some limitations that will be discussed during the presentation.

*Speaker