

Genomic Identification of Anisakis Simplex Larvae by PCR-RAPD

Authors : Fumiko Kojima, Shuji Fujimoto

Abstract : Anisakiasis is a disease caused by infection with an anisakid larvae, mostly *Anisakis simplex*. The larvae commonly infect in marine fish and the disease is frequently reported in areas of the world where fish is consumed raw, lightly pickled or salted. In Japan, people have the habit of eating raw fish such as 'sushi' or 'sashimi', so they have more chance of infection with larvae of anisakid nematodes. There are three sibling species in *A. simplex* larvae, namely, *A. simplex sensu stricto* (Asss), *A. pegreffii* (Ap) and *A. simplex C*. It was revealed that Ap is dominant among the larvae from fish (*Scomber japonicus*) in the Japan Sea side and Asss is dominant among those of the Pacific Ocean side conversely. Although anisakiasis has happened in Japan among both the Japan Sea side area and the Pacific Ocean side area. The aim of this study was to investigate genetic variations between the siblings (Asss and Ap) and within the same sibling species by random amplified polymorphic DNA (RAPD) technique. In order to investigate the genetic difference among the each *A. simplex* larvae, we used RAPD technique to differentiate individuals of *A. simplex* obtained from *Scomber japonicus* fish those were caught in the Japan sea (Goto Islands in Nagasaki Prefecture) and the coast of Pacific Ocean (Kanagawa Prefecture). The RAPD patterns of the control DNA (*Genus Raphidascaris*) were markedly different from those of the *A. simplex*. There were differences in amplification patterns between Asss and Ap. The RAPD patterns for larvae obtained from fish of the same sea were somewhat different and variations were detected even among larvae from the same fish. These results suggest the considerable high genetic variability between Asss and Ap and the possible existence of genetic variation within the sibling species.

Keywords : Anisakiasis in Japan, *Anisakis simplex*, genomic identification, PCR-RAPD

Conference Title : ICID 2017 : International Conference on Infectious Diseases

Conference Location : Sydney, Australia

Conference Dates : January 26-27, 2017