CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY

Name(s)
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Project Number
S2311

Project Title
Are Fish Safe to Eat? Part 2

Abstract

Objectives/Goals
This science project aims to determine the presence of external and internal parasites on randomly selected fish samples from San Diego and San Pedro Fish markets and identifying any human health risk upon consumption.

Methods/Materials
Twenty (20) randomly selected fish samples from San Diego and San Pedro fish markets, were utilized in this study. There were 2 samples for each fish species -- Porgy (Perciformes sp.), Lane Snapper (L. synagris), Robalo (C. undecemalis), Pacific Mackerel (S. sierra), Golden Pompano (T. carolinus), Rabbit Fish (Sigarus sp.), Thread Herring (O. oglinum), Bigeye Scad (S. crumenophthalmus), Tilapia (Oreochromis sp.), Mackerel Pike (C. saira). Fish samples were carefully dissected and examined following the ICAUC (Institutional Animal Care and Use Committee) guidelines.

Results
Out of twenty (20) fish samples only one (1) or five percent (5 %) of the samples tested positive for an internal parasite. All twenty (20) fish samples examined were free from any external parasite upon gross and microscopic examination. There were 48 cyst like structures isolated from the musculature of the #Porgy A# fish sample. The isolated parasite was submitted to Fish parasitologists at Oregon State University and Cornell University for positive identification. Both fish parasitologists concluded that the cyst structures found in the muscle of one of the fish samples contained spores of the myxozoan parasite from the genus Kudoa. DNA work is ongoing to further identify the species

Conclusions/Discussion
I therefore conclude that seafood parasites are a natural component of the environment and may be viewed as an indicator of the relative health of an ecosystem. The majority of species of parasites present on and within fish are not hazardous to human health however, measures can be taken to mitigate the risks of infection. These steps involve either physically removing (completely or in part) or negating the infectivity of the parasites present. Such measures may be applied during harvesting, processing or post-processing treatment. Based on the result of the experiment one out of twenty fish samples, was positive with parasite but does not pose a health risk to humans. This project research will be continued next year on the species identification of the Myxozoan parasite, Kudoa.

Summary Statement
Based on the results of the examination of the fish samples it is safe to conclude that some fish parasites pose a health risk to humans if not properly cooked and some fish parasites does not pose a health risk to humans.

Help Received
Senior Fish Health Specialist Craig Banner, Dr. Stephen Atkinson, Associate Lab Researcher at Oregon State University, and Dr. Mani Lejeune -Cornell University