Research experience in Japan as a JSPS Invitation Fellow (Long-term)

Kay Lwin Tun
Department of Zoology
University of Yangon

- Applying to JSPS Invitation Fellow (Long-term)

- Research experience in Japan

Fellowship Programs to Japan

Career Stages of Researchers

Ph.D.

6 years within obtaining Ph.D. | Mid career | (Associate) Professor

Postdoctoral Fellowships (Standard)

1 - 2 years

About 240 grantees

Invitation fellowships

(Long-Term)

2 -10 months

About 70 grantees

(Short-Term)

14-60 days

About 210 grantees

(Short-term S)

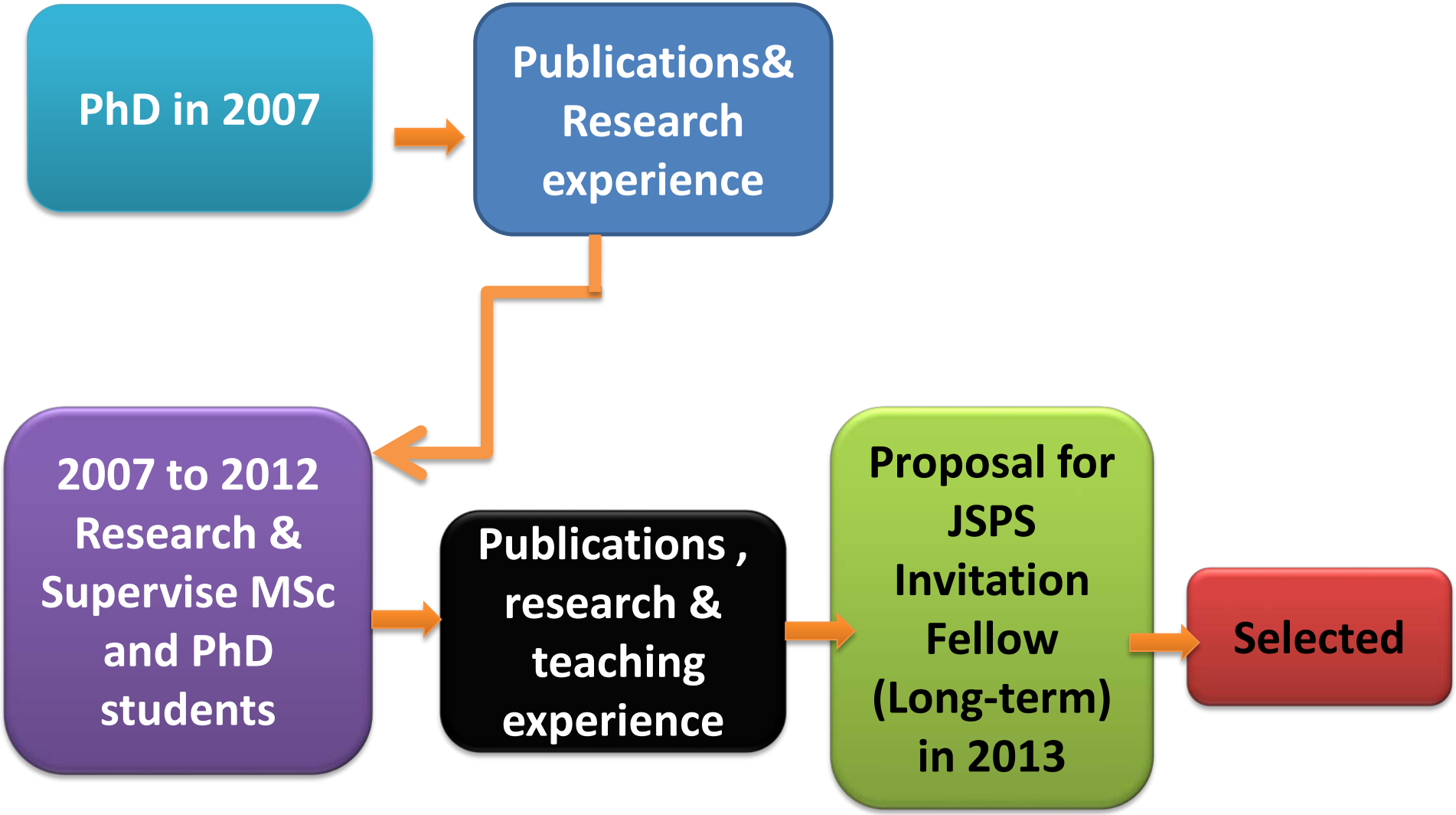
for Nobel laureates or recipients of similarly high-level international prizes

7-30 days

About a few grantees

From 2007 to 2012

Lab of Aquatic Bioscience, Dept of Zoology, UY


PhD in 2007
Publications& Research experience
2007 to 2012 Research & Supervise MSc and PhD students
Publications , research & teaching experience
Proposal for JSPS Invitation Fellow (Long-term) in 2013
Selected

Applying to JSPS Invitation Fellow (Long-term)

How do we prepare for our application form?

Host researcher

- Host researcher working in the subject that you are interested
- Japanese partner universities (https://www.jsps.go.jp/english/e-fellow-sp/p_host-inst_j.html)
- Communications and network

魚病研究 Fish Pathology, 41 (3), 123–125, 2006. 9

© 2006 The Japanese Society of Fish Pathology

A Preliminary Study on the Infection of Anisakid Larvae in Juvenile Greater Amberjack *Seriola dumerili* Imported from China to Japan as Mariculture Seedlings

Tomoyoshi Yoshinaga*, Ryuhei Kinami, Kathryn A. Hall and Kazuo Ogawa

Department of Aquatic Biosciences, Graduate School of Agricultural and Life Sciences, The University of Tokyo, Tokyo 113-8657, Japan

(Received May 18, 2006)

ABSTRACT—Juvenile greater amberjack *Seriola dumerili* (fork length: 39.5–43.0 cm) imported from China to Japan as mariculture seedlings were found infected with larval anisakid nematodes in the spring of 2005. The parasite was morphologically identified as *Anisakis* type I larva causing human anisakiasis. Based on the nucleotide sequence of ITS1-5.8S rRNA-ITS2 region, the parasite was tentatively identified as *A. pegreffii*, one of the species comprising *A. simplex* sensu lato. The main infection site was the wall and serous membrane of the stomach. No worms were found in the ventral side of the body muscle of fish. This is the first documented case of *Anisakis* infection in cultured marine fishes.

Key words: *Anisakis simplex* sensu lato, *Anisakis pegreffii*, *Seriola dumerili*, greater amberjack

During February-April, 2005, heavy infections with anisakid larvae were found in juvenile greater amberjack, *Seriola dumerili*, imported from China into many fish farms located in Kyushu and Shikoku, Japan, as mariculture seedlings. We were requested to identify the anisakid larvae by researchers in local government agencies and fish farmers, who were concerned about public health. We urgently carried out a preliminary study on the taxonomy and infection sites of the parasite.

Materials and Methods

Amberjack were collected from four anonymous fish farms located in Kyushu and Shikoku in February, March and April 2005. All the sample fish had been captured in the South China Sea off southeast coast of China in the spring of 2004, grown out on the Hainan Island and subsequently in Ningde, Fujian, China until November 2004 or January 2005, and transported to Japan as seedlings for mariculture. The sampled fish (fork length, 39.5–43 cm; n = 4–9 for each farm) were transported to our laboratory on ice or killed and examined on site. Worms were collected from the former fish and histological specimens were made from the latter fish.

For morphological examination, worms (n = 42) collected from the stomach wall and mesenteries of fish were fixed in hot 70% ethanol, cleared in glycerol, and observed microscopically. For DNA sequence studies, DNA was extracted and purified from three worms collected from an amberjack and preserved in 99.5% ethanol, with conventional SDS-Proteinase K lyses, phenol chloroform extraction and ethanol precipitation. The ITS1-5.8S-ITS2 rDNA region was amplified from the extracted DNA as template using primers NC5 (forward; 5' -GTAGGTGAACCTGCGGAAGGATCATT -3') and NC2 (reverse; 5'- TTAGTTTCTTTTCCTCCGCT -3')[7]. PCR products were purified by QIAquick PCR Purification Kit (QIAgen Inc., Germany) according to manufacturer's instructions, cycle-sequenced by both the above primers, NC13 (forward; 5' -ATCGATGAAGAACGCAGC -3'), NC13R (reverse; 5'-GCTGCGTTCTTCATCGAT -3') and XZ1R (reverse; 5'- GGAATGAACCCGATGGCGCAAT -3') and BigDye® Terminator v3.1 Cycle Sequencing Kit (Applied Biosystems, USA). Sequences were visualized by an ABI PRISM 310 sequencer (Applied Biosystems), concatenated manually, aligned using Se-Al[8] and PAUP 4.0. Windows Beta ver. 10. (Sinauer Associates, Inc.)

To identify the infection sites of the parasite, nine fish were examined for the worms. As the stomach wall and the serous membrane surrounding the stomach were found heavily infected, those organs were dissected under a stereomicroscope and worms were counted. The pyloric caeca, intestine and mesenteries were pressed between two glass plates and macroscopically examined on a light box for the parasite. The ventral muscle surrounding the body cavity was sliced into 2–3 mm thick pieces and macroscopically examined on a light box.

Results and Discussion

Morphologically, the worms possessed a boring tooth at the anterior end, an excretory pore below the boring tooth, a cylindrical ventricle in the alimentary tract and a micron at the posterior end. A ventricular appendix and intestinal caecum were absent. From these characteristics, they were identified as *Anisakis* larvae type I according to the previous definitions[3,6]. The morphometric measurements and indices (range with mean in parentheses) were following: body length: 16.4–25.0 (21.5) mm; body width: 307–565 (449) μm ; esophagus

* Corresponding author
E-mail: atyoshi@mail.ecc.u-tokyo.ac.jp

Publications

- Number of publications
- Impact factor of journals (the impact factor is not always a reliable instrument but some journal has not received yet impact factor)

Impact factor (ISI IF)	Journal
34.83	The New England Journal of Medicine
30.98	Nature
⋮	
2.5	Aquaculture
1.7	Diseases of Aquatic Organisms
0.8	Fish pathology

Research plan in Japan

- Effectively explain why your research is important to conduct
- What expected outcomes are
- It is possible and able to be done within study period

Application form (https://www.jsps.go.jp/english/e-inv/index.html)

(FORM 2) FY 2013

JAPAN SOCIETY FOR THE PROMOTION OF SCIENCE (JSPS)

APPLICATION FOR JSPS POSTDOCTORAL FELLOWSHIP FOR NORTH AMERICAN AND EUROPEAN RESEARCHERS (Short-term)

<This form should be attached to FORM 1 prepared by your proposed Japanese host researcher. Applications should be typed or printed. >

1. Name in Full FAMILY First Middle		
2. Date of Birth: / / Day Month Year	3. Nationality / Permanent Resident / Citizen Ship	
4. Current Appointment and/or Status		
5. Academic Degree		
Type (PhD, etc)	Date Obtained / /	
Field	☐ Expected Day Month Year	
Institute (Country)		

6. Higher Education (Start from the latest one)

Name of University / Institution	Location	Degree	Field	Completion Date (Month, Year)

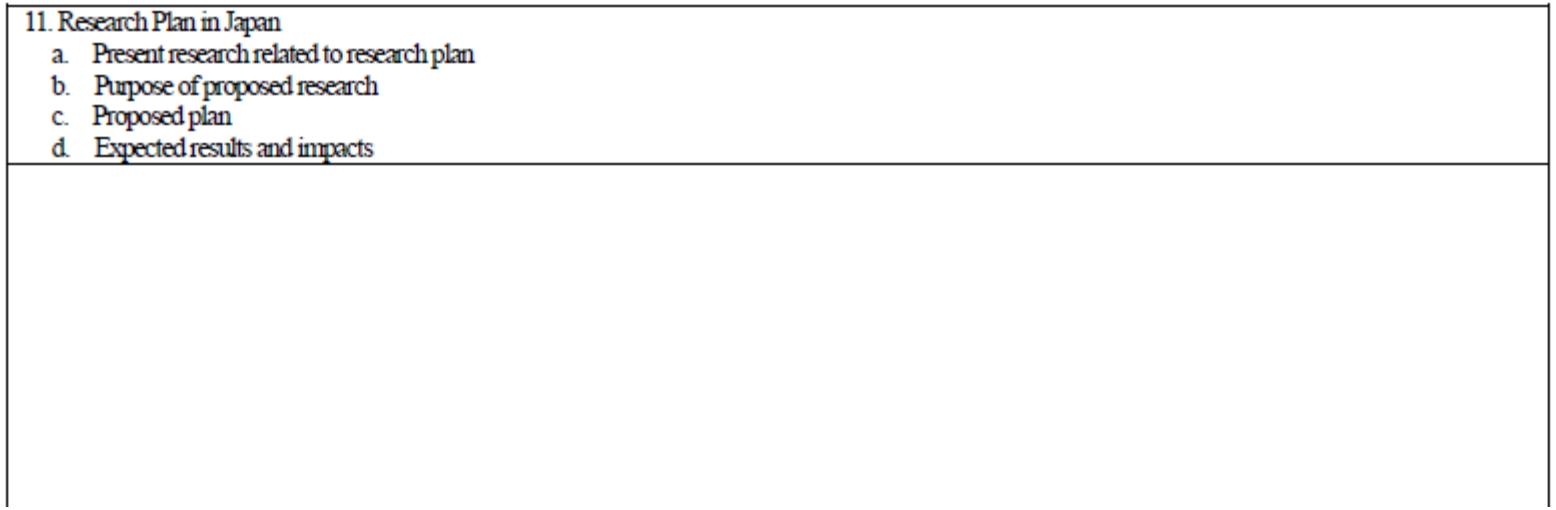
Past research and achievements

9. Past Research and Achievements

List of major publications

10. List of Major Publications
Authors (all), title, Journal, Vol. , No , pp. - , Month, Year

Research plan in Japan


11. Research Plan in Japan
a. Present research related to research plan
b. Purpose of proposed research
c. Proposed plan
d. Expected results and impacts

- a. Present research related to research plan
  b. Purpose of proposed research
  c. Proposed plan
  d. Expected results and impacts
- Discuss with host researcher
- Well-prepared
- Send to host researcher with necessary documents
- Closing dates vary according to each university

Research experience in Japan

Host researcher

Prof. Tomoyoshi Yoshinaga
Laboratory of Fish Diseases
Department of Aquatic Bioscience
Graduate School of Agricultural and Life Sciences
The University of Tokyo

- Discussion for research proposal
- Apply to JSPS as host researcher
- Visa
- Accommodation
- Funding

'DNA barcoding of pathogenic parasites of freshwater fishes in tropical areas'

(熱帯域の淡水魚の病原寄生虫のDNA バーコーディング)

Carp, *Labeo rohita*

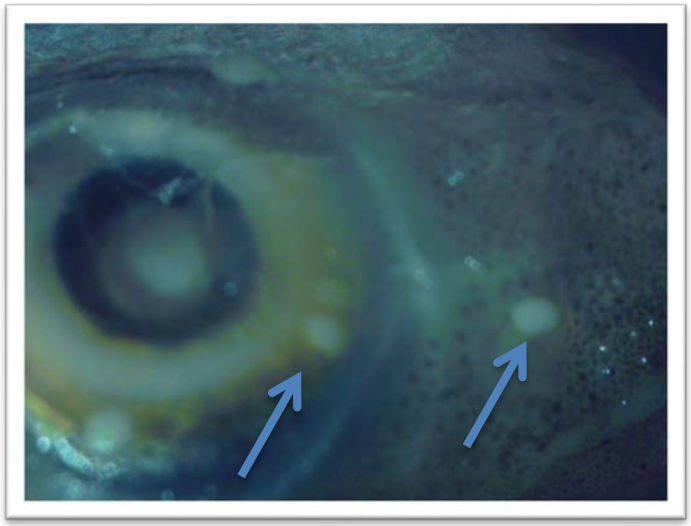
Carp , *Cirrhinus mrigala*

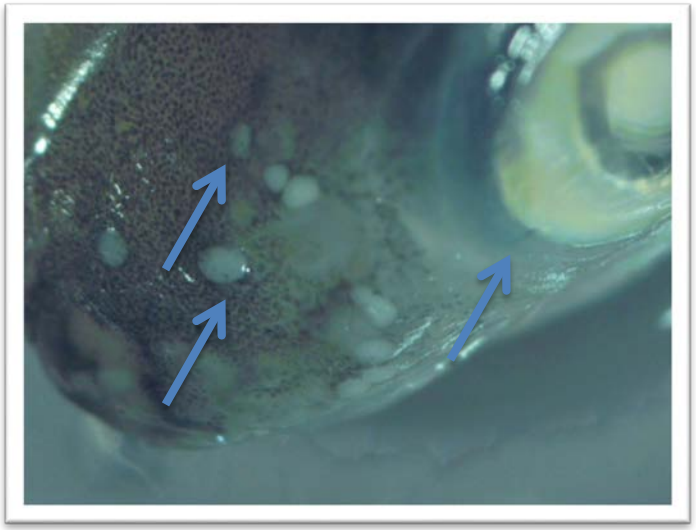
Pacu , *Piaractus brachypomus*

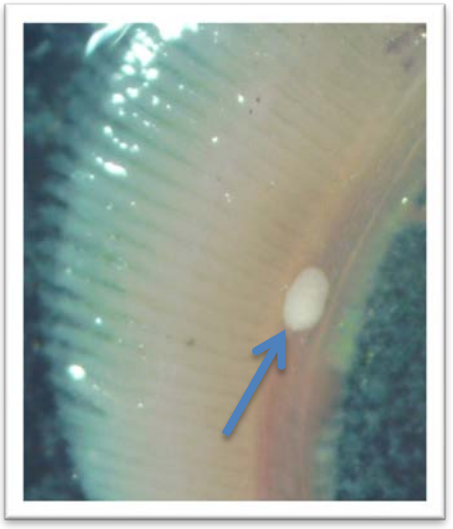
Catfish , *Pangasius hypophthalmus*

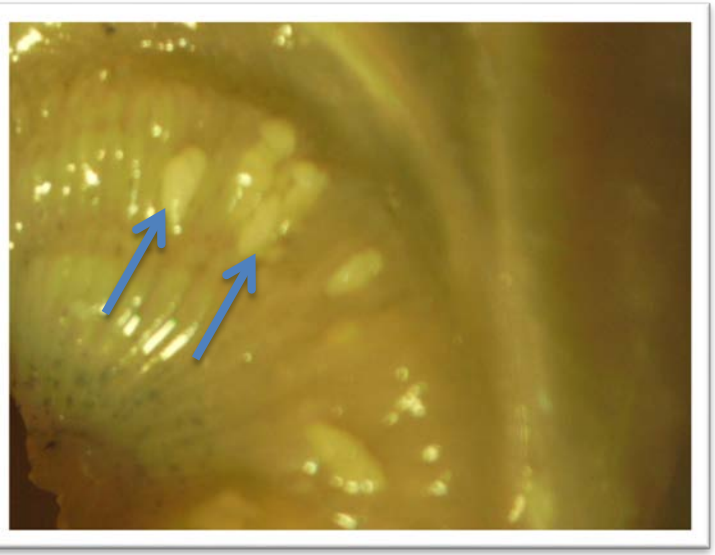
Tilapia, Oreochromis sp.

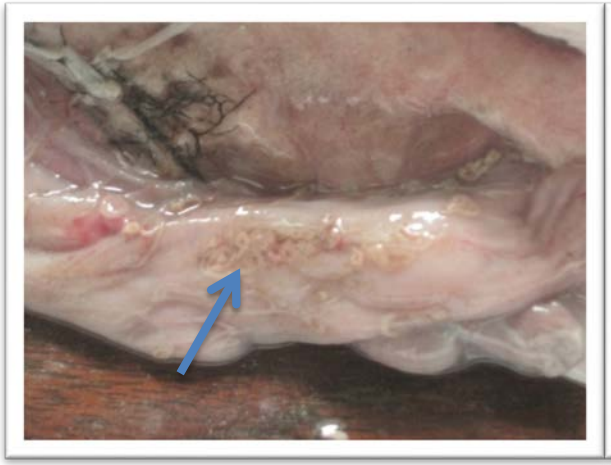
Parasitic infection in some fishes in Myanmar (2007-2012)

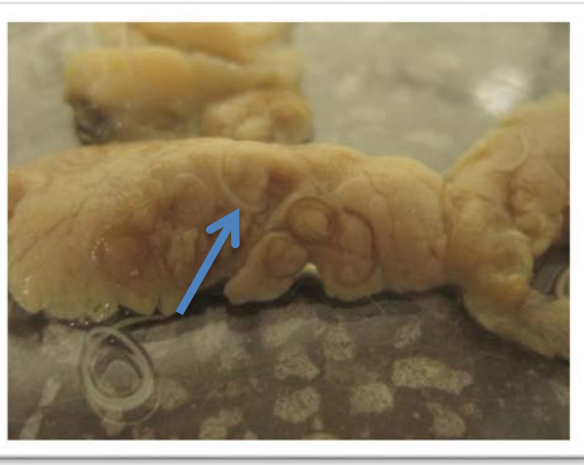












- More than 15 parasites species were recorded.

- Could not be conducted down to the species level

➔ Insufficient literature

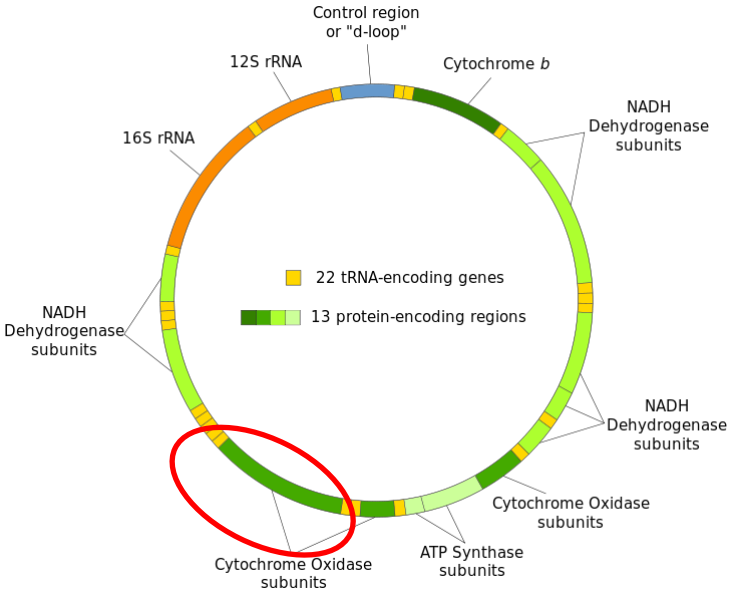
➔ Lack of congruence between morphological and molecular data

➔ Require specialist in each taxon

To reveal molecular techniques in identification and taxonomy of fish parasites in tropical areas, which will facilitate identification of fish parasites without specialist in each taxon

Understanding on parasitic diversity of fish in Myanmar is importance not only in Myanmar but also in the world wide because fish are aquatic animals and their pathogens can easily disperse with water current.

- 18S rDNA, ITS and cytochrome *c* oxidase I (COX) mitochondrial gene of species



- Registered in GenBank
- A total of 5 new species of Myxozoan parasite were recorded.

Publications

(1) Seasonal occurrence of Myxozoan infection in Rohu, *Labeo rohita* (Cypriniformes: Cyprinidae), in Myanmar (Kay Lwin Tun, Kosuke Zenke, Hnin Hnin Htay, Hiroshi Yokoyama, Tomoyoshi Yoshinaga, to be submitted to Parasitology international)

(2) Two new species of Myxozoan parasites recorded from Mrigal, *Cirrhinus mrigala* (Cypriniformes: Cyprinidae), in Myanmar (Kay Lwin Tun1, Kosuke Zenke, , Hiroshi Yokoyama Tomoyoshi Yoshinaga, to be submitted to Fish pathology)

(3) Infection by *Lernaea cyprinacea* (Copepoda) in ayus *Plecoglossusaltivelis* and several other fishes in the Shonai River, Japan (Yu Yoshimine, Tadashi Isshiki1, Shizuo Aino, Kay Lwin Tun , Tomoyoshi Yoshinaga, submitted to fish pathology)

(4) Identification of *Clinostomum* species collected from Japanese killifish, *Oryzias latipes : short communication*(Kay Lwin Tun and Tomoyoshi Yoshinaga, to be submitted to Fish pathology)

Presentation

Seasonal fluctuation of Myxozoan infection in Rohu, *Labeo rohita* (Cypriniformes: Cyprinidae), in Myanmar

(Kay Lwin Tun, Hnin Hnin Htay, July Maung Maung, Hiroshi Yokoyama1, Tomoyoshi Yoshinaga)

(ISAAH 7, Oregon, United State, Aug 2014)

Experience

- Teaching research methodology to undergraduate and graduate students
- Special lectures
- Collaborative research and discussion with other universities and research centers (Mie University, Nara Prefecture)

Communications and network

- Researchers from Japan, UK, USA, Australia, Korea etc.
- Students from Japan, China, Malaysia, Vietnam, Nigeria etc.

- Even though we have finished JSPS program, we still keep in touch with host professor and lab members as well to promote our research activities

Acknowledgement

- Ministry of Education
- JSPS
- University of Yangon