This report should be submitted within 2 weeks after you return to Japan.

（Abroad・Domestic） Internship report form（Student） 2019.07.31

Name	Hla Myet CHEL
Laboratory	Lab of Parasitology
Year (Grade)	D3
Internship institution	Meguro Parasitological Museum, Tokyo
Internship period	Internship period: 07/10/2019 - 07/14/2019 (Departure Date from Sapporo: 07/09/2019, Arrival Date in Sapporo: 07/15/2019)
Purpose	(1) To learn the classical and advanced techniques for morphological identification of helminthic parasites in taxonomy. (2) To use the acquired knowledge in my current research works and future academic career. (3) To make a good relationship with the specialists of the museum for future collaboration with the university in Myanmar in the field of parasite survey and identification.

The reason why you chose this institute

The Meguro Parasitological Museum possesses about 60,000 parasite specimens (including 1,500 type specimens), 50,000 papers and 6,000 books on parasitology and parasitic diseases. As museum activities, the institute researchers are conducting a variety of research and publish a lot of articles on morphological works. Moreover, they also provide study programs as an educational activity. Therefore, the institute is one of the best places to learn morphological identification of parasites. In addition to this, when I presented my research work on elephant nematode identification in a conference of parasitology in Nagasaki, one of the institute researchers approached to me and gave a lot of suggestions on my study. Thus, the institute is very impressive and attractive to me for learning and studying the morphological and taxonomic identification of parasites.

Result of the activity （about 800 words、provide photos, tables and figures that clearly show the activities during the period）

1. Study on morphological identification of helminths

1.1 Searching the literature and studying the morphological keys

On the first day of internship, I presented about my study progress, research interest and discussed with the specialist from the institute. He explained his process of morphological identification of helminths. At first, he taught me

how to study taxonomic identification in referred and original books, papers and database. In the museum, there is a library especially for parasitology. We searched all of the literature about parasites of elephants and wild life including Russian books and studied morphological keys for species identification.

1.2 Morphological examination of nematode parasites

The nematode parasites fixed in 70% ethanol were processed to be transparent in 1:1 solution of glycerin and 70% ethanol for 30-60 min. Then, the parasite was placed in a few drops of 100% glycerin on the glass slide and covered by cover slip. The slide specimens were observed and measured the internal organs required for species identification (Fig.1).

Many nematodes about 26 worms were examined during four days of internship. The whole mount of worms were taken photos with scale and measured the total length and maximum diameter by ImageJ software. The diameter and length of head, buccal capsule and oesophagus, the distance of excretory pore and nerve ring form anterior end, length of left and spicules in male and length of tail and vulva from tail end in female were measured for all specimens. The shape of buccal capsule and number of coronal leaflets were also checked for species identification. After all measurement, the nematode worms were identified as *Quiloina rennie, Quilonia travancra, Murshidia neveu-lemairei, Murshidia falcifera* and *Murshidia indica.* Out of 26 worms, *Q. rennie, Q. travancra, M. neveu-lemairei, M. falcifera* and *M. indica* were found 16, 3, 4, 2 and 1, respectively.

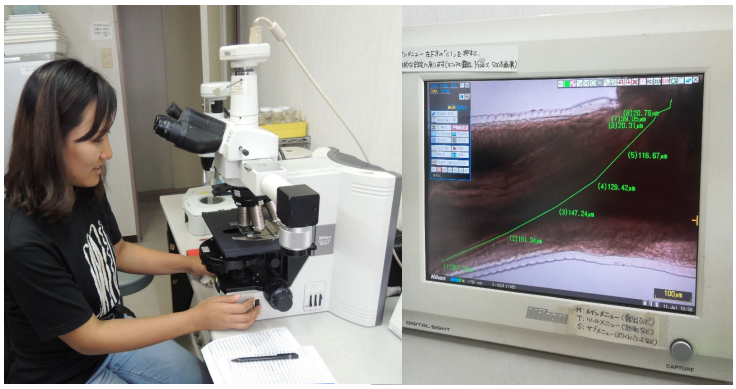

Fig.1. Examination and measurement of the nematode species

1.3 Morphological examination of trematode parasite

Before making the slide specimen, the trematode parasite was examined under dissecting microscope and taken photos for measurement. Then, the parasite was washed in distilled water overnight. On the second day, the trematode was put between two glass slides. The slides were tied with the threads to be flattened the parasite. The eight-folded papers same with the thickness of the trematode were also placed between the slides to reduce the surface tension of the parasite and it was sunk in the liquid solution of glycerin and 70% ethanol (1:1) overnight. On the third day, it was slightly flattened but the organs inside the parasites were still unclear to examine. Therefore, the slides were transferred to the liquid of glycerin and 70% ethanol (2:1) for 30 min and then to 3:1 solution of glycerin and 70% ethanol overnight again. The thickness of the paper was also reduced to four-folded and then two-folded size as the parasite was flattened gradually. On the fourth day, the parasite was clear enough to examine the internal organs necessary for morphological observation.

The slide specimen of trematode was examined under the microscope and the organs were measured to identify the species. After observation and all measurements of the length and width of the parasite, ventral sucker, testes, ovary and eggs and also the distance between head and genital pore, the trematode parasite was identified as *Pfenderius papillatus* belonging to the Order, Amphistomida and the Family, Fasciolidae (Fig.2).

Fig.2. *Pfenderius papillatus*

2. Study on exhibition of parasite specimens in the museum

Although the museum is not too large, the parasite specimens are been exhibiting enough to understand the biology of parasites and importance of parasites in public health. In the first floor, the diversity of parasites can be studied and various kinds of parasite specimens including arachnids, round worms, tape worms and flat worms together with the explanation of their life cycle in different animals. In the second floor, the importance of parasitic diseases in human, prevalence and eradication of parasitic diseases in Japan and the world are also exhibited. One of the tape worm (8.8 m in length) found in Japanese human is the most popular in the museum for public awareness. The museum is a very nice and attractive place for children and curious people for parasitology.

3. Activities other than study

All of the staffs from the museum including the director, researchers and I had to take a meeting at 10:00 and tea break at 15:00 together with the founder of the museum in Friday. It was really fun for me to talk them in Japanese language although I can speak Japanese language a little. One specialist of nematodology from Oita also visited the museum during my stay and gave me useful knowledge. The hosted supervisor and other young researchers made a small party for me in the Japanese restaurant and it was also very enjoyable.

What do you think the positive impact of the activity will have on your further career path?

In conclusion, I could learn the systematic technique for morphological identification of parasites and I got the valuable knowledge and experience for my current research. I will continue my research works of parasite surveys in Myanmar not in the elephants but also in other animals by applying the knowledge and experience gained from this internship. I was thinking to collect the parasite specimens found in Myanmar and to build a small museum for education and awareness in the future. I could make a good relationship with all of the specialists from the institute for further collaboration and I believe that I will apply the acquired knowledge obtained from this internship in my future career path.

Advice for your junior fellows

No matter for abroad or domestic internship!

No matter for big or small institute!

It is the most important to learn and get the experience of your interested field which can fully support for your career path.

Approval of supervisor	Institution・Official title・Name

※1 Send the electronic file to the Leading School section, International Affairs Office

※2 Attach a copy certificate of the content of internship activity that is prepared by the counterpart at the internship institution (any form with a signature of the counterpart).

※3 The Steering Committee of the Leading Program will first confirm the content of this report and report will be forwarded to the Educational Affairs Committee for credits evaluation.

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