

**Research Activity Report**  
**Supported by “Leading Graduate Program in Primatology and Wildlife Science”**  
 (Please be sure to submit this report after the trip that supported by PWS.)

2017. 06, 06	
<b>Affiliation/Position</b>	Graduate School of Science, Kyoto University/M1
<b>Name</b>	Yusuke Fuke

<b>1. Country/location of visit</b>
Kyoto Pref., Japan
<b>2. Research project</b>
Genome Science Course
<b>3. Date (departing from/returning to Japan)</b>
2017. 05. 22 - 2017. 05. 26 (5days)
<b>4. Main host researcher and affiliation</b>
Dr. Wataru Shinohara professor at Kagawa university, Dr Hiroshi Kudoh professor at Kyoto university and PWS
<b>5. Progress and results of your research/activity</b> (You can attach extra pages if needed)
Please insert one or more pictures (to be publicly released). Below each picture, please provide a brief description.
<p>In Genome science course, our purpose is to learn knowledge and skills of molecular technique, data analysis and communication in English, through experiment to identificate the gametophyte of fern by molecular approach using samples we collected in Yakushima.</p> <ul style="list-style-type: none"> <li>• Schedule           <ul style="list-style-type: none"> <li>May 22 DNA extraction and PCR (Tissue-direct PCR)</li> <li>May 23 PCR, Purification of PCR products and cycle sequencing</li> <li>May 24-26 Data Examination, analysis and making poster</li> <li>May 30 Poster session (The 6th International Seminar on Biodiversity and Evolution)</li> </ul> </li> <li>• Examination           <p>First, we performed DNA extraction of part of the samples. Since the number of gametophyte we collected is large, 192 out of 349 samples were selected from three altitudes. DNA extraction took Direct-Tissue PCR method. This is a breakthrough method we put tissue (not DNA) into tube directly and run PCR. Primers used the rbcL region used in plants widely. Result of the cycle sequencing, we could read the sequence only 62 samples. Five of them were moss. We confirmed the sequences and identified by Nucleotide BLAST. After that, the phylogenetic trees were estimated by MEGA7. We discussed the interpretation of the results and created a poster for international seminar.</p> </li> <li>• Poster session           <p>From the results of identification, we reported one of the first record species in Japan and the composition of genus by altitude in the sporophyte and gametophyte. In addition, we estimated the seasonal phenology of fern propagation and the appearance of gametophytes. Also, future issues clarified, such as sampling bias and molecular experiment methods.</p> </li> </ul>

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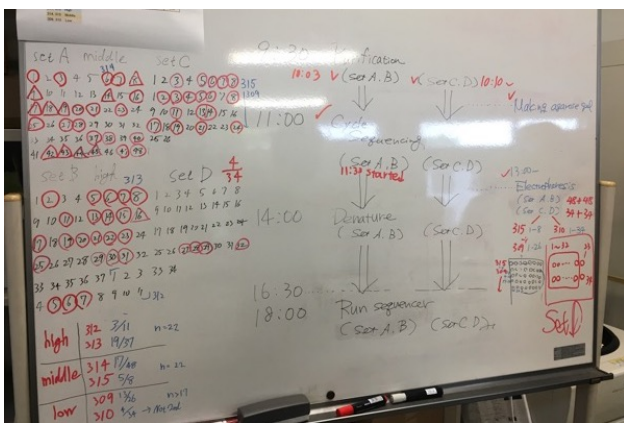


Fig. 1. The work procedure and result of electrophoresis.

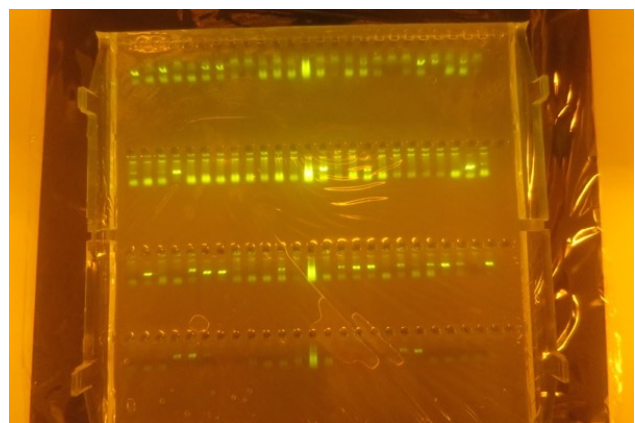


Fig. 2. Electrophoresis.

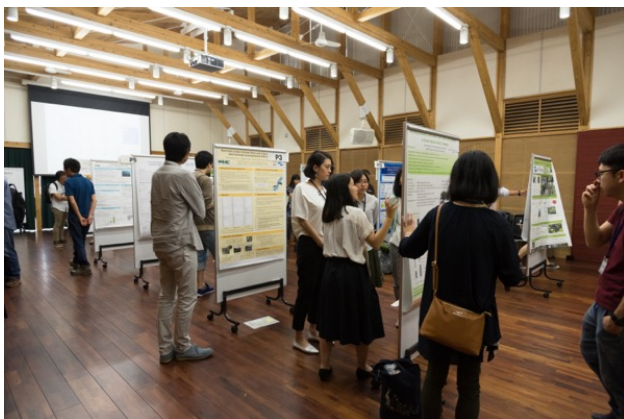


Fig. 3. Poster session in international seminar.

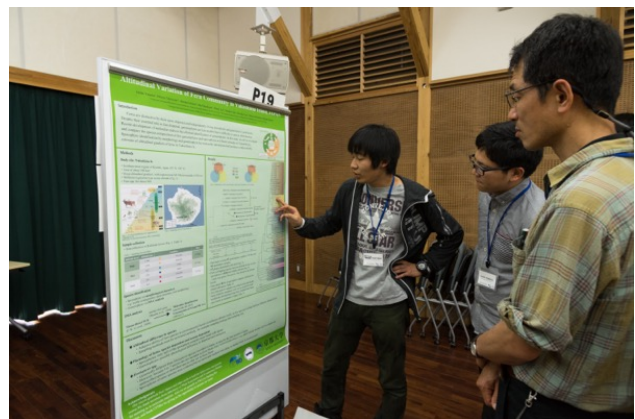


Fig. 4. Poster session of our group.

## 6. Others

We are grateful to PWS for funding this course. Our sincere gratitude Prof. Fuse and members from the laboratory of Plant Systematics and Evolutionary Botany.