

Summary of Science Talk (Plant Science Group)

7th October 2011

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JST Tokyo Headquarter, Tokyo, Japan

1. Importance of research in Plant Science field.

Sustainable agriculture for food and biomass/ biofuels is common issues and research interest in the East Asian region. Among other sciences, Plant Science is an essential element for sustainable agriculture. Cassava research has special significance because Cassava is an important tropical crop for food security, poverty reduction and industrial application in many East Asian countries and sustainable agriculture of Cassava is a common issue of those countries. Researches on “forest tree species” such as poplar, *Eucalyptus*, and *Acacia* are also very important for sustainable biomass production because of myriad applications of woody biomass. In addition, researches on other tree species such as oil-producing *Jatropha* are getting spot light in East Asian countries for sustainable biofuel production. As other crops/trees, such as rice, maize, soybean, cotton, oil palm, and rubber tree could be included in the topics for future collaboration, exchange of research interests or other information among researchers, research institutions, or governmental organizations in the region will be necessary.

Further development of plant biotechnology is also useful for conservation and could be included as an important area for cooperation in future.

2. Necessity for research cooperation in the East Asian region and synergistic effect.

Sharing genetic resources through international research cooperation is important for advancement of plant science because Southeast Asian countries have large biodiversity. Sharing research related information and experiences and brain circulation in the region are also extremely important for research as well as education/ training of young researchers. Expansion of research network in the region is of great importance.

Advanced technologies of Japan and rich biological and genetic resources of Southeast Asian countries will make synergy. In addition, Japan will be able to provide necessary information or experiences for field test including GMO and other countries could provide test field if necessary approval is obtained.

3. Possible composition of research groups (at least three countries) and role-sharing.

Institution	Role
Cassava research	
RIKEN Plant Science Center (Japan)	<ul style="list-style-type: none"> • Omic analysis for starch biosynthesis pathway • Molecular breeding of cassava • Starch analysis (with Akita Prefec. Univ.) • Heavy-ion irradiations (with RIKEN Nishina Center)
Mahidol University, BIOTEC/NSTDA and DOA etc. (Thailand)	<ul style="list-style-type: none"> • Breeding of cassava • Marker development • Cassava Diseases
Institute of Agricultural Genetics (AGI) etc. (Vietnam)	<ul style="list-style-type: none"> • Breeding of cassava • Evaluation of transgenic and heavy-ion-beam-irradiated cassava plants in the field • Cassava Diseases
University of Battambang (Cambodia)	<ul style="list-style-type: none"> • Evaluation of cassava plants in the field
BPPT, LIPI, ILETRI etc. (Indonesia)	<ul style="list-style-type: none"> • Genetic transformation • Stress Tolerance (high-salinity, acid, dry, shade etc.) • Starch Analysis and Utilization
Tree research	
RIKEN Biomass Engineering Program/ Nara Institute of Science and Technology and Oji paper (Japan)	<ul style="list-style-type: none"> • Molecular breeding based on omics technologies
Nanjing Forestry University (China)	<ul style="list-style-type: none"> • Breeding of Poplar • Evaluation of newly developed useful poplar candidates in the field
Forest Science Institute of Vietnam (Vietnam)	<ul style="list-style-type: none"> • Breeding of Eucalyptus • Evaluation of newly developed useful Eucalyptus candidates in the field
Thailand Institute of Scientific and Technological Research (Thailand)	<ul style="list-style-type: none"> • to be determined

Institution	Role
Jatropha research	
RIKEN Biomass Engineering Program/ Nara Institute of Science and Technology (Japan)	• Molecular breeding based on omics technologies
BPPT and Bogor Agricultural University (Indonesia)	• Breeding and genetic engineering
Thailand Institute of Scientific and Technological Research and Kasetsart University (Thailand)	• to be determined

List of Participants:

- Brunei: Dr. Lim Chee Ming, Head of Energy Research, Universiti Brunei Darussalam
- Cambodia: Mr. SOEM NARA, Deputy Director General, National COST
- Indonesia: Ms. Ir. Nada Marsudi, M.Phil, Director for International Science and Technology Network
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Prof. Taku Demura, Graduate School of Biological Sciences, Nara Institute of Science and Technology
Dr. Takeshi Usami, Chief, Department of International Affairs, JST
- Thailand: Dr. Parichatt Krongkant, Director, National Science and Technology Development Agency
- Vietnam: Ms. Nguyen Thi Thanh Thuy, Deputy Director General of Agricultural Genetics Institute