

Faculty of Resource Science &amp; Technology

# e-Newsletter RLL

## Education Attaché Visit (Embassy of Iraq) 22 & 23 Nov 2021

### Special points of interest:

- Education Visit by Iraq Embassy
- Mutant vs High-Yielding Rice Proteomes
- Field trip for STH2114 Field Ecology

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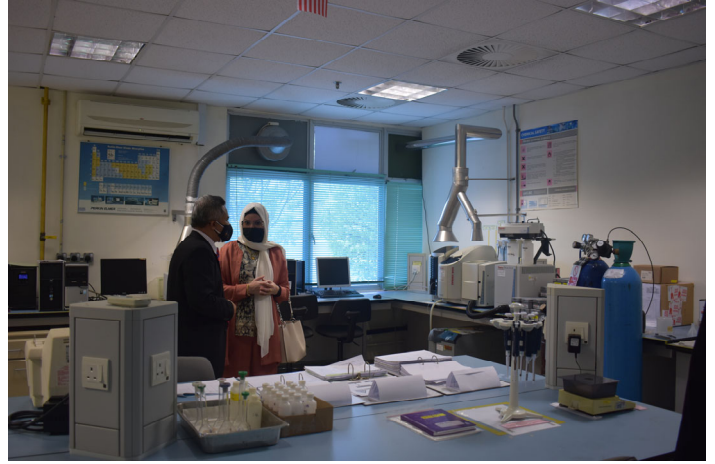
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Souvenir Presentation to Assoc. Prof. Dr. Ahlam Neamah Lafta (the Cultural Counselor , Embassy of the Republic of Iraq)



Group photo after the visit to the RLL



Visit to Museum and the ISO Lab @ FSTS



Visit to PPT (Pusat Penyelidikan Tumbuhan)



Visit to the Gallery

## Research @ RLL: Mutant vs High-Yielding Rice Proteomes

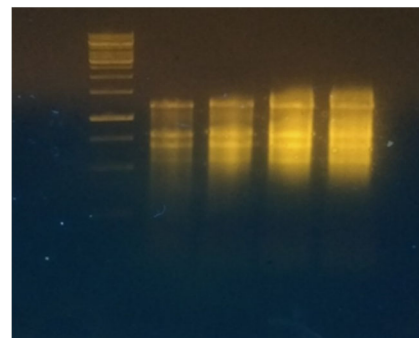
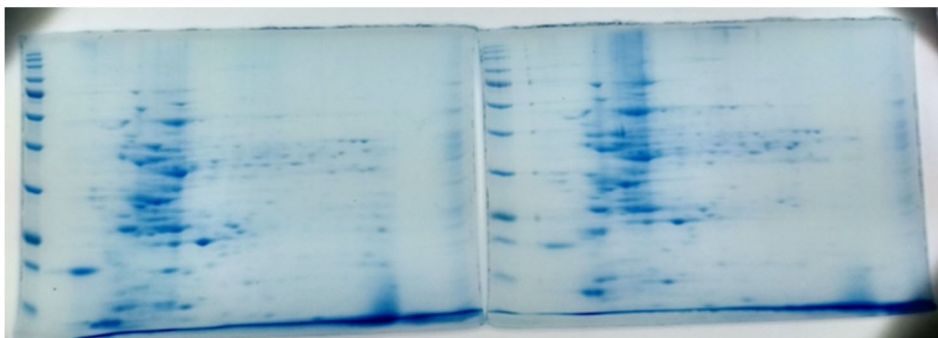
**Nur Ezzati Hamdan and Hasnain Hussain**  
**Proteomics Lab, FRST**

A project is being conducted to identify the differentially expressed genes and proteins that contribute to a high yielding trait from rice varieties in Malaysia. Rice, scientifically known as *Oryza sativa* L., is cultivated worldwide and acts as an important staple food for almost half of the world's population, especially in Asian countries. It is white, soft and chewy like textures due to its abundance of the starch compound. Nowadays, there are wide varieties of rice that have been cultivated all over the world in ensuring global food security. Do you know how scientists developed these different varieties?



There are either using a traditional breeding method or molecular application. Conventionally, rice breeding was achieved by crossing together two different plants with relevant characteristics. The plant will either be produced naturally based on natural variants or controlled mating by selecting plants with desirable genes. Meanwhile, modern techniques use a scientific tool in targeting specific genes or biomarkers to manipulate/alter the genome in rice and develop a particular type of rice. Why there is such a need to manipulate the genes? The answer is simple: global warming, natural disasters, limited land, and environmental stress, including drought, flood, and saltwater, devastate crop production. These factors will cause disruption and lead to food insecurity.

Our current rice varieties cannot yet be adapted to such drastic climatic change. Researchers have tried several methods to improve rice yield for the global population (Oladosu et al., 2014). Alteration of rice genomes using induced mutation might help achieve the breeding objective and improve rice yield. At the UNIMAS Plant Research Centre, several rice varieties, including high-yielding and mutant varieties from different agencies, are being planted. Using these samples, the differentially expressed proteins and genes will be extracted and identified to target some unique/specific biomarkers that contributed to a high yielding trait during starch biosynthesis.



# Teaching & Learning Activities @ RLL

STH2114 Field Ecology Course @ RLL and PPT (29 Nov - 6 Dec 2021)

Madinah Adrus



Briefing about how to use parabolic reflector



Discussion about planning to check mist net

This field trip involved a total of 69 undergraduates, accompanied by 6 lecturers and 9 technical staffs, spending 6 days within the campus for the teaching and learning activities of STH2114 Field Ecology course.

### Objectives:

- i. To integrate various sampling techniques for investigation of biodiversity, ecological patterns and process;
- ii. To organize ecological survey and interpret the data

### Learning Outcome:

To produce and report a checklist of fauna for 5 taxa (Mammals, Aves, Fish, Herpetofauna, and Invertebrates).



Measurement of bird samples



Briefing about mammals

# Teaching & Learning Activities @ RLL



*Polypedates macrotis* (Dark-eared tree frog)



*Pitta moluccensis* (Blue-winged pitta)



Setting up camera trap



Measurement & data collection for invertebrates (insects)



View of trail



Demonstration using white screen light trap



White screen light trap