



# Faculty of Agriculture, Kasetsart University

Department of Agronomy, Bangkhen, Bangkok 10900 Thailand



## Crop Physio-Molecular Biology Laboratory

Under the direction of  
**Suttkhet Nakasathien, Ph.D. (Crop Physiology)**  
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Interdisciplinary research emphasizing on crop physiology, biochemistry and molecular biology for BIOTECHNOLOGY APPLICATIONS

- Research for novel traits of cassava, eucalyptus and leguminous species using tools in Plant Physiology, Biochemistry and Molecular Biology.
- Serve as a base of physiological and biochemical characterization facility for the faculty of Agriculture and other research units both on- and off-campus.

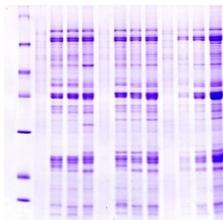
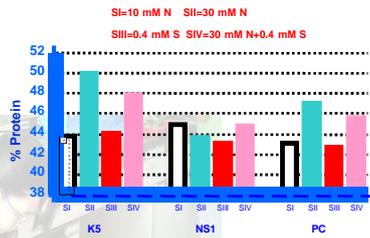


### Research Programs

#### Cassava

Novel starch for alternative source of the energy and bio-materials

- Cassava starch composition needs to be improved for the future uses. We explore novel cassava germplasm and study the gene and protein profiles on both starch biosynthesis and degradation processes. This will lead to understanding the basis of how to improve the starch qualitatively and quantitatively and to meet the requirement as raw materials for both bio-fuel and bio-material productions. Genomic study of genes responsible for nutrient uptake is also under investigation.

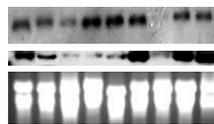
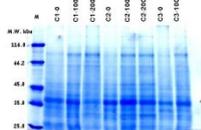


#### Cassava Research Team

Mr. Pradit Lengbamrung  
Ms. Prapapun Youngsukying  
Ms. Piyachat Sripongpakapun

#### Legumes

Both soybean and mungbean are our focus for improving their quality. In soybean, specific fatty acid and amino acids in seeds will be improved for the needs of health market. While low phytate mungbean is our interest to eliminating the problem of those Zn, Mg, Fe unavailability, especially in human and as well, in monogastric animals. **Mungbean seed storage protein profile will be investigated to find unique proteins valuable for industrial uses**



#### Legume Research Team

MS. Jidapa MUNGKARNNA  
Ms. Utumporn SOMPONG  
Ms. Myint Myint Maw  
Mr. Myo Win

#### Past students:

Mr. Narin Rungpanich, M.Sc.  
Ms. Pornpan Theerapatanapong, M.Sc.  
Ms. Arunee Wongkaew, M.Sc.

#### Eucalyptus

As a fast-growing economic tree, *Eucalyptus camadulensis* Dehn. is used in many industries, i.e., pulp and paper production, biofuel, furniture or construction. Although *Eucalyptus sp.* is considered as tolerant plant and can be grown in various environments, but it is still limited for planting eucalyptus in non-farmed land with major soil problems such as calcareous or saline soil, especially combining with waterlogging condition. We need to overcome these problem, so integrative approaches is used to understand the mechanisms of those susceptible and tolerant clones when coping with such conditions. This will lead to the varietal improvement of unique eucalyptus clones that are suitable for growing under abiotic stresses.

In addition, we are stepping into understanding the processes involving in cellulose biosynthesis to improve wood yield and/or improving traits of interest to lower the cost of pulp production, such as low lignin content.

#### Past Students:

Ms. Prapapun Youngsukying, M.Sc.  
Ms. Supanee Intong, M.Sc.  
Ms. Chumpunee Naksiri, M.Sc.