



Analysis of the Inhibitory Effects of Natural Compounds and Probiotics on the Pathogen of Honey Bees *Paenibacillus larvae*



1. Title of Project : Analysis of the Inhibitory Effects of Natural Compounds and Probiotics on the Pathogen of Honey Bees *Paenibacillus larvae*.

2. NPUST Research Team Members

Department	Name	Position
Department of Biological Science and Technology	Hsueh-Ling Cheng	Professor
	Yo-Chia Chen	Professor

3. Invited International Teachers and Students

Title of International School	Department	Name	Position
Maejo University Phrae Campus	Department of Biotechnology	Veeranan Chaimanee	Assistant Professor

4. Content of Research or Internship

The following materials, prepared and provided by Professor Hsueh-Ling Cheng or Professor Yo-Chia Chen, were analyzed by Professor Veeranan Chaimanee for their effects on inhibiting the growth of *Paenibacillus larvae*, a pathogen of honey bees:

- The exopolysaccharides of *Bacillus amyloliquefaciens* (a probiotic).
- The secreted materials of *Bacillus amyloliquefaciens*.
- The secreted materials of *Bacillus subtilis* J1 (a probiotic).
- The secreted materials of *Bacillus subtilis* BuHarn (a probiotic).
- Fifteen natural compounds purified from bitter melon.
- Twelve natural compounds purified from banana flowers.

5. Description of Performance

- Participation in the Teacher-Student Gathering Meeting for the Visiting Scholars of UNTA in August.

- Participation in the Product Exhibition held by the Office of Research and Development in Thailand.

- Participation in International Symposium: 2018 International Symposium of Agricultural Biotechnology, Sep 21th, 2018, Taiwan; Professor Hsueh-Ling Cheng and Professor Veeranan Chaimanee both were invited speakers in this symposium.

- Bilateral Research Project: under preparation.



Figure 1. Teacher-Student Gathering Meeting for the Visiting Scholars of UNTA in August.



Figure 2. Professor Hsueh-Ling Cheng and Professor Veeranan Chaimanee in the Gathering Meeting.



Figure 3. Professor Veeranan Chaimanee and the laboratory members of Professor Hsueh-Ling Cheng.