

# BIOCHEMICAL TECHNOLOGY (BCT)



## Graduate Programs (Ph.D & M.Sc.)

in  
Division of Biochemical Technology  
School of Bioresources and Technology

King Mongkut's University of Technology Thonburi (Bangkuntien), 49 Soi Thian Thale 25, Bang Khun Thian Chai Thale Road, Tha Kham, Bang Khun Thian, Bangkok 10150, Thailand

### Doctor of Philosophy Program

Doctor of Philosophy Program in Biochemical Technology aims to create academics or researchers or innovators who can apply knowledge of biomolecules and technology and develop research capabilities to strengthen the country's manpower to target industries.

Ones who are capable to create innovations or technologies that can be applied in practice to support the mission of economic development from the biological resource base, BCG model. Develop research capabilities to strengthen the country and develop manpower to target industries.

Study program 1.1: Applicants who have completed a master's degree (48 credits)

Study program 2.2: Applicants who have completed a bachelor's degree (74 credits)



### Master of Science Program

Master of Science program in Biochemical technology aims to produce

- graduates with ability to apply knowledge in biomolecules and technology for problem solving or process development.

- graduates who are good and competent, of high quality, with expertise that meets the needs of the labor market and the targeted industries of the country.

Ones who can create useful biochemical products or services to serve the economy and society of Thailand and drive the new economic "BCG Model"

Study program Kor 1: Thesis 36 credits

Study program Kor 2: Thesis 12 credits and course work 25 credits



## RESEARCH LABORATORY

### Enzyme Technology

- Novel lignocellulosic degrading bacteria from aerobic and anaerobic condition.
- Multienzyme complexes and multifunctional enzyme platform for bio-base industrial applications.
- Biological pretreatment and bio-conversion of agricultural wastes to high value-added products (rare sugar, prebiotic and bioactive compounds).

Contact: Assoc. Prof. Dr. Chakrit Tachaapaikoon ([chakrit.tac@kmutt.ac.th](mailto:chakrit.tac@kmutt.ac.th))

### Lipid Technology

- Extraction, purification, and synthesis of natural lipid bioactive compounds as functional ingredients for foods, cosmetics and supplements
- Analysis of fatty acid profiles and lipid profiles by GC and HPLC
- Biodiesel production and purification

Contact: Assoc. Prof. Dr. Kornkanok Aryusuk ([kornkanok.ary@kmutt.ac.th](mailto:kornkanok.ary@kmutt.ac.th))

### Carbohydrate Technology

- Modification (chemical, physical, and enzymatic reactions) and characterization of starch and flour
- Development of value-added starch products
- Production of fibers, oligosaccharides and prebiotic starch

Contact: Dr. Ditpon Kotatha ([ditpon.kot@kmutt.ac.th](mailto:ditpon.kot@kmutt.ac.th))

Dr. Yuree Wandee ([yuree.wan@kmutt.ac.th](mailto:yuree.wan@kmutt.ac.th))

### Phytobioactive & Flavor

- Food and flavor technology (extraction, identification and application, flavor enhancer, encapsulation, restructured meat) Functional ingredients (bioactive compounds, protein hydrolysates, non-calorie sweeteners, prebiotics and probiotics)
- Intelligent packaging (biodegradable foam and freshness indicator film)
- Technologies for value added plant (elicitors, LED, intelligent greenhouse)

Contact: Assoc. Prof. Dr. Natta Laohakunjit ([nutta.lao@kmutt.ac.th](mailto:nutta.lao@kmutt.ac.th))

### Gene Technology

- Gene regulation, transcriptional regulators and pathways for controlling central metabolism, multi-drug resistance, stress response and ageing
- Yeasts as a model organism for bioactive compound/drug discovery and a production platform of high value biochemicals and advanced biofuels
- Biochemical product development for health and well-being, pharmaceuticals, cosmetics and biotech-industries

Contact: Assoc. Prof. Dr. Nitnipa Soontornngun ([nitnipa.soo@kmutt.ac.th](mailto:nitnipa.soo@kmutt.ac.th))

### Lignin Technology

- Development of lignin extraction process from plant biomass
- Lignin and biological activity
- Ligninolytic enzyme and microbes

Contact: Assoc. Assist. Prof. Paripok Phitsuwan ([paripok.phi@kmutt.ac.th](mailto:paripok.phi@kmutt.ac.th))

