

## Thai-Swedish Trilateral Development Cooperation Programme

### GENERAL INFORMATION

A joint Doctoral Fellowship Programme for students from Bangladesh, Bhutan, Nepal, Sri Lanka and CLMV countries (Cambodia, Lao PDR, Myanmar, and Vietnam) is co-sponsored by the Thailand International Cooperation Agency (TICA), the National Research Council of Thailand (NRCT), and the Swedish International Development Cooperation Agency (Sida) (managed by the International Science Programme (ISP), Uppsala University).

This joint Doctoral Fellowship Programme is a joint collaboration between Sweden and Thailand aiming at supporting interested students from Bangladesh, Bhutan, Nepal, Sri Lanka and CLMV countries (up to five scholarships per year) to pursue their doctoral studies in Thailand and Sweden, with the opportunity to undertake research with Thai and Swedish advisors of academic excellence in the scientific fields of Chemistry, Mathematics, Physics, and Biology.

#### 1. Academic disciplines, qualifications, and duration of studies

- 1.1 This programme is open to public and private personnel as well as university graduates from all academic disciplines in the field of Chemistry, Mathematics, Physics, and Biology in particular regarding studies contributing to the development objectives of the applicant's country.
- 1.2 The interested applicants should have the following qualifications:
  - A master's degree in a discipline related to the proposed doctoral study with a GPA of not less than 3.5 (from a total of 4.0) or equivalent from an institution of higher education recognized by NRCT, and
  - A bachelor's degree with a GPA of not less than 3.0 (from a total of 4.0) or equivalent from an institution of higher education recognized by NRCT;
  - Research publication(s) or oral/poster presentation(s) at a scientific meeting with English abstract(s) will be given a priority;
  - Appropriate background to undertake the proposal he/she has outlined.
- 1.3 The fellowship will be awarded when a successful applicant has been accepted as a doctoral student in a Thai university's doctoral programme recognized by NRCT.
- 1.4 The prospective major thesis advisor of the applicant in a Thai university's doctoral programme must be qualified under the regulation stipulated by NRCT.
- 1.5 Participants are expected to complete their doctoral studies within 3 consecutive academic years (2 years in Thailand and 1 year in Sweden). Should any participant wish to prolong his/her research (in Thailand or Sweden), his/her major thesis advisor

- in a Thai university's doctoral programme will have to submit a request to NRCT.
- 1.6 This request will then be submitted to TICA and the ISP for consideration. If approved, the prolonged period of study should not exceed 1 year in Thailand or in Sweden.
- 1.7 Once the prolongation of the study has been approved, TICA and NRCT shall be responsible for the expenditures allocated in individual granting contract to cover the prolonged period of the study undertaken in Thailand for no more than 1 year. The ISP shall be responsible for the expenditures incurred in Sweden. However, if a student cannot complete his/her doctoral study within 4 years, he/she will still be able to pursue his/her doctoral study within the timeframe set by his/her university in Thailand, but with his/her own support.

## 2. Application procedures

- 2.1 Any interested applicant should submit three (3) copies of completed application form together with proposed research plan and relevant documents listed in the attached checklist to the Royal Thai Embassy or Royal Thai Consulate in their respective countries.
- The detailed guidelines for application are as follows;
- i. For the government officer: must get approval from their organizations prior to submitting their application through the designated focal point agency for development cooperation in their respective countries;
  - ii. For the non-government officer: must get approval from their organizations prior to submitting their application directly to the Royal Thai Embassy or Royal Thai Consulate in their respective countries
  - iii. For the students who are currently studying in Thai Universities: must get permission from their organizations to continue study for doctoral degree prior to submitting their applications directly to the Royal Thai Embassy or Royal Thai Consulate in their respective countries.
- 2.2 Up to five (5) fellowships may be awarded each year for postgraduate students from Bangladesh, Bhutan, Nepal, Sri Lanka and CLMV to pursue their Ph.D studies in Thailand and Sweden.
- 2.3 The Royal Thai Government will inform the nominating government (or relevant authority) whether or not the nominee(s) has been accepted for the course, normally at least two months before the programme of study starts.
- 2.4 Information of programme and the application form can also be accessed or downloaded at the following websites:

National Research Council of Thailand (NRCT)  
<https://nrct.nrcet.go.th>

Thailand International Cooperation Agency (TICA)  
<https://tica-thai.gov.mfa.go.th>

at the rate of 7,000 Baht and accommodation allowance at the rate of 7,000 Baht. It is suggested that each participant bring some pocket money to cover the initial expenses before the allowance is paid.

4.4 While studying in Sweden, each participant will receive a health insurance, exemption of fee for residence permit, and a monthly subsistence allowance covering personal expenses and accommodation.

4.5 Participants should be in good health and must not have any health condition, which may require treatment in Thailand and Sweden during the study.

## 5. Regulations

Participants are required to observe the following regulations:

5.1 Participants should only stay at places recommended by the Royal Thai Government and the Swedish Government.

5.2 Participants must not bring any family members with them to Thailand and Sweden.

5.3 Participants must return to their home countries after the completion of his/her Ph.D. studies as well as the fellowship contract at the scheduled date. Participants are required to fly only on the route designated and must not make any alterations. Please be informed that the maximum allowable baggage that can be loaded on flights is 20 kilograms. Participants will be responsible for any cost incurred in exceeding this limit.

5.4 Participants must observe the rules and regulations of the institution(s) and the fellowship contract.

5.5 Participants must refrain from engaging in political activities, or any form of employment for profit or gain.



# Thai-Sweden Trilateral Development Cooperation

## THE JOINT FELLOWSHIP PROGRAM FOR DOCTORAL STUDY IN THAILAND

### INSTRUCTIONS

This application form contains 4 parts:

- Part I: General Information of Student ("Research Assistant")
- Part II: Status of Employment/Education and Grant
- Part III: Educational Records of Applicant
- Part IV: Expertise and Activities
- Part V: Opinions and Information from Advisor ("Researcher")**

The applicant completes only Part I to IV.

Part V only by applicant who is already doctoral student in Thailand which should be completed by a prospective advisor in a Thai University. And in this case we also consider the doctoral program and Thai advisor.

*Details of doctoral programs may be obtained from the website of university of interest.*

Each question must be answered clearly and completely. Detailed answers are required in order to make the most appropriate arrangements. After the application form is printed out, it shall be certified in typewritten form by the nominating government at the end of Part IV. Six (6) copies of the certified application forms, completed with a research proposal and other relevant documents given in the checklist of this form will then be forwarded to the Royal Thai Embassy or Consulate in respective countries before the closing date for application.

**Check List**  
**For Student Applying for the Joint Fellowship Program**  
**for Doctoral Study in Thailand**

Four (4) copies of the following documents should be submitted to the Royal Thai Embassy or Consulate in respective countries before the closing date for application.

Please check your documents and mark

- 1. Application form with applicant's signature as well as Government Authorization signature in Part IV.
- 2. Digital file of your application form in MS Word format.
- 3. Academic transcript of Bachelor's degree and certified document for your rank in class (if applicable).
- 4. Academic transcript of Master's degree.
- 5. Most recent academic transcript of doctoral study, if applicable.
- 6. Research publication(s) or oral/poster presentation(s) at scientific meeting(s) with English abstract(s), please submit full paper(s).
- 7. Research proposal for doctoral study (please give details not more than 1 A4 page using Palatino Linotype 10 pt in MS word formatted including: Thesis title, Research objective(s), Research methodology, and Novelty and uses of research. Must be submitted together with a digital file.)
- 8. English proficiency test (e.g. TOEFL, IELTS, etc.).
- 9. Two recommendation letters.
- 10. Health status certification.
- 11. Other (specify).....

Additional documents to be submitted only by applicants who are already doctoral students in Thailand.

- 12. Application form Part V with advisor's signature.
- 13. Digital file of form in MS Word format.

**FORM FOR STUDENT APPLICANT FOR THE JOINT FELLOWSHIP PROGRAM  
FOR DOCTORAL STUDY**

**PART I: General Information of Student ("Research Assistant")**

<b>General information of applicant</b>						(Please attach Photograph here)
Title (Mr./Mrs./Miss)						
Family name <small>(as shown in passport)</small>						
Given name(s) <small>(as shown in passport)</small>						
Age	Sex	Marital Status				
Nationality		Religion				
Birth date <small>(D/M/Y)</small>		Place of birth <small>(City and Country)</small>				
Passport no.		Place of issue				
Date of expiration <small>(D/M/Y)</small>		International airport/city <small>(for departure)</small>				
<b>Home address</b> (Please complete this section as clearly as possible; information will be used for travel arrangement.)						
No.		Road				
Subdistrict		District				
City		Country		Postcode		
Tel. (Country code/area code/number)			Fax			
<b>Address for correspondence</b> (Please complete this section as clearly as possible; information will be used for travel arrangement.)						
Please select <input type="checkbox"/> As above <input type="checkbox"/> As given below						
Name of place		No.				
Road		Subdistrict				
District		City				
Country		Postcode				
Tel. (Country code/area code/number)			Fax			
E-mail						
<b>Name and address of person must be notified in case of emergency</b>						
Title	Name	Family name				
Relation to you						
Name of place		No.				
Road		Subdistrict				
District		City				
Country		Postcode				
Tel. (Country code/area code/number)			Fax			
E-mail						

**PART II: Status of Employment/Education and Grant**

Current income from	<input type="checkbox"/> Personal source/Family	<input type="checkbox"/> Permanent Job	<input type="checkbox"/> Temporary Job
	<input type="checkbox"/> Other work (give details)		

**Employment Record** (It is important to give complete information. For each appointment, give details of your duties and responsibilities.)

Present or most recent post	Dates from (D/M/Y)	to
Position	Salary	USD
Employer	<input type="checkbox"/> Government/State Enterprise	<input type="checkbox"/> Private
Office		
No.	Road	
Subdistrict	District	
City	Country	Postcode
Tel. (Country code/area code/number)	Fax	

**Description of your work, including your personal responsibilities**

Presently you are	<input type="checkbox"/> Not a student
	<input type="checkbox"/> Student <input type="radio"/> Bachelor <input type="radio"/> Master <input type="radio"/> Doctor

Program	Institution/University		
Beginning semester	<input type="checkbox"/> 1st <input type="checkbox"/> 2nd <input type="checkbox"/> summer semester	Year	Credits earned

Note	Remaining credits	Thesis	<input type="checkbox"/> Passed	<input type="checkbox"/> Research ongoing
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Expected graduation in month	Year
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For those who are working and studying	<input type="checkbox"/> Studying outside working hours
	<input type="checkbox"/> Study leave obtained

Study leave from (D/M/Y)	to
--------------------------	----

**Other educational/research grant (s)** (Give details for other educational/research grant(s) presently receiving or will be receiving.)

Name of grant	Donor				
Period of grant from (year)	to	Duration	Year(s)	Amount	USD

**Details and conditions of grant** (Please attach contract and details of grant.)

Will you terminate the educational/research grant that you are receiving?	<input type="checkbox"/> Yes <input type="checkbox"/> No
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Other (give details)

**PART III: Educational Records of Applicant**

**Records for bachelor's degree (together with transcript)**

Bachelor's degree program		<input type="checkbox"/> Regular	<input type="checkbox"/> International
From city		Country	
Bachelor's degree obtained			
Curriculum		Faculty	
University/Institution			
Awarded in month		Year	
GPAX (Give your GPAX and Max. score)		Class of honours	
Approximate rank		in class.	<input type="checkbox"/> with certified document <input type="checkbox"/> without document
Number of students in class about			
Scholarship(s) or award(s) while studying for bachelor's degree			
Year		Name of scholarship/award	
		Donor	
Year		Name of scholarship/award	
		Donor	
Research or senior project undertaken			
Project title			

**Records for master's degree (with transcript)**

Master's degree program		<input type="checkbox"/> Regular	<input type="checkbox"/> International
From city		Country	
Applicant	<input type="checkbox"/> studied	<input type="checkbox"/> is studying	<input type="checkbox"/> graduated with master's degree
Curriculum			
Faculty			
University/Institution			
Beginning semester	<input type="checkbox"/> 1st semester	<input type="checkbox"/> 2nd semester	<input type="checkbox"/> summer semester
Year			
Graduated/expect to graduate in month		Year	
Credit earned		Remaining credits	GPAX (Give your GPAX and Max. score)
Credit earned for thesis		Remaining credits	Thesis grade (if available)
Research work or thesis for master's degree			
Thesis title			
Name of advisor		(Academic title)	(Name) (Family name)
Contact address	Department		
	Faculty		
	University		
	Tel		Fax

**Scholarship(s) or award(s) received while studying for master's degree**

Year		Name of scholarship/award	
		Donor	
Year		Name of scholarship/award	
		Donor	

**Research dissemination during study or after graduation: Please submit full papers!**

Research publication (s) (Give details: author(s), year, title, journal, vol. and pages)			
Presentation (s) at scientific/technical meeting(s) (Give details: Presenter, year, title, meeting, venue, and D/A/Y)			



Doctoral Study, for doctoral students and master students upgrading to doctoral students			
<input type="checkbox"/> Applicant registered as doctoral student in year		semester <input type="checkbox"/> 1st <input type="checkbox"/> 2nd <input type="checkbox"/> summer	
<input type="checkbox"/> For master student upgraded to doctoral student			
From date	semester <input type="checkbox"/> 1st <input type="checkbox"/> 2nd <input type="checkbox"/> summer		Academic year
Coursework credits earned	Remaining credits	GPAX (Give your GPAX and Max. score)	
Thesis credits earned	Remaining credits		
Current status	<input type="checkbox"/> passed <input type="checkbox"/> not yet passed qualifying exam or equivalent		
Expected duration for further doctoral work	year(s)	Month(s)	
<b>Proposed topic of doctoral research</b>			
<b>Brief description of proposed thesis (Must be submitted)</b>			
<b>Thesis title</b>			
Name of advisor	(Academic title)		(Family name)
	(Name)		
Contact address	Department		
	Faculty		
	University		
	Tel	Fax	
<b>Scholarship(s) or award(s) received during doctoral study</b>			
Year	Name of scholarship/award		Donor
Year	Name of scholarship/award		Donor
<b>Research dissemination during doctoral study. Please submit full papers!</b>			
<b>Research publication (s)</b> (Give details: author(s), year, title, journal, vol, and pages)			
<b>Presentation (s) at scientific/technical meeting(s)</b> (Give details: Presenter, year, title, meeting, venue, and D/M/Y)			

**PART IV: Expertise and Activities**

<b>Languages</b> (Please specify your languages: Fair, Good, or Excellent)	<b>Read</b>	<b>Write</b>	<b>Speak</b>
English			
Mother tongue:			
Other language:			

**English proficiency test:** (Please attach copy)

TOEFL	score	
IELTS	score	
Other (specify)	score	

**Experiences abroad:** (Please give details and duration.)

<b>Year</b>	<b>Duration</b>	<b>Country</b>	<b>Details</b>

**Participation in student activities:**

**Additional information, opinions or suggestions** (provide attachment(s), if necessary)

**Expectations:**  
Please describe the practical use you will make of this training/study on your return home in relation to the responsibilities you expect to assume and the conditions existing in your country in the field your training/study. (Give attachment, if necessary)

I certify that my statements in answer to the foregoing questions are true, complete and correct to the best of my knowledge.

If accepted for a joint fellowship program for doctoral study under the RGJ-Ph.D. Program, I undertake to:-

- (a) carry out such instructions and abide by such conditions as may be stipulated by both the nominating government and the host government in respect of this doctoral study and research;
- (b) follow the course of training and research study for doctoral degree, and abide by the rules of the University or other institutions or establishments in which I undertake to study;
- (c) refrain from engaging in political activities, or any form of employment for profit or gain;
- (d) submit any progress reports which may be prescribed;
- (e) return to my home country promptly upon the completion of my course of training.

I accept the graduation requirement for RGJ-Ph.D. research assistantship that a grantee must produce at least one research publication in an international research journal prior to his/her graduation (except the doctoral program, e.g. the program in Thai language, specifies otherwise).

I also fully understand that if I am awarded a fellowship, it may be subsequently withdrawn if I fail to make adequate progress or for other sufficient cause determined by the host government.

Signature of applicant \_\_\_\_\_

Printed name \_\_\_\_\_

Date \_\_\_\_\_

**Government Authorisation**

To be completed by the nominating government or the agency to whom the nomination has been invited.

I certified that, to the best of my knowledge,

- (a) all information supplied by the nominee is complete and correct;
- (b) the nominee has adequate knowledge and experience in related fields and has adequate English proficiency for the propose of the fellowship in Thailand.

On return from the fellowship, the nominee will be employed in the following position:

**Title of post**

**Duties and responsibilities**

*Signature of responsible Government official*

**Official Stamp:**

**Title:**

**Organisation:**

**Office address:**

**Date:**

**Health Status Certification**

I confirm that I am physically and mentally fit and able to carry on a doctoral study in Thailand, and that

(a) I am free from infectious diseases (such as tuberculosis, leprosy, syphilis and filariasis) and other conditions (such as psychosis, drug addiction, and chronic alcoholism) which could present risks for myself as well as others during my fellowship;

(b) I have no conditions or defects which might require treatment during my fellowship.

Signature of applicant \_\_\_\_\_

Printed name \_\_\_\_\_

Date \_\_\_\_\_

**PART V: Opinions and Information from Advisor ("Researcher")**

*(To be completed by prospective Thai advisor.)*

Name of advisor in Thai				(Title)	(Name)	(Family name)	(Academic title)
Name of advisor in English				(Title)	(Name)	(Family name)	(Academic title)
Affiliated department/Office							
Faculty							
University/Institution							
No.		Moo		Soi			
Road				Subdistrict			
District				Province			
Postcode		Tel. and mobile phone			Fax		
E-mail							
Address for correspondence				<input type="checkbox"/> As above office		<input type="checkbox"/> As given below	
Name of place							
No.		Moo		Soi			
Road				Subdistrict			
District				Province			
Postcode		Tel. and mobile phone			Fax		
has agreed to supervise				as Ph.D. research assistant			
For academic reason(s)							
And for following personal qualifications and attributes							
<b>Thesis title and proposal</b> (Not more than one A4 page using Palatino Linotype 10 pt font)							
Thesis title in Thai							
Thesis title in English							
Research objective(s)							
Research methodology							
Novelty and uses of research							

Swedish co-advisor/collaborator <input type="checkbox"/> Not available and will inform later <input type="checkbox"/> Available (please give details)			
Name of advisor			
	(Title)	(Name)	(Family name)
Position			
Department			
Faculty			
University/Institution			
Address			
City		State	
Country		Postcode	
Tel.		Fax	
E-mail			
Mode of collaboration		<input type="checkbox"/> As a co-advisor <input type="checkbox"/> Looking after student abroad <input type="checkbox"/> Other, i.e. _____	
Proposed starting date of grant			
Opinions and suggestions (if any)			
For student applying to enter a doctoral program in Thailand (limited at 3 advisors)			
1.			
2.			
3.			

Signature of advisor \_\_\_\_\_

Printed name \_\_\_\_\_

Date \_\_\_\_\_

## List of RGJ advisors 2020/2021

Name: Sarana Sommano  
Program: Horticulture, Plant Biotechnology  
Department: Plant and Soil Sciences  
Faculty: Faculty of Agriculture  
University: Chiang Mai University  
Telephone: +66 859075634  
Email: sarana.s@cmu.ac.th  
Keywords: Phytochemistry; Functional ingredients; Biological properties; Biomass valorization

### Summary of research:

Plant Bioactive Compound Group (BAC Lab), is established as part of the department of plant and soil sciences. Though is not an official operating unit, the main focus is to highlight the values of plant diversity richness and complexity of northern Thai culture through their phytochemical compositions and local knowledge and employ innovative technology that drive global sustainable development goals (SDGs). Leading by Dr. Sarana Sommano, BAC lab has absorbed this model policy and adopted the theme which has become its research core research strength. Besides, BAC also considered resilience as the backbone research concept which support the flexible growth of Thai economics. BAC delineates a way forward to support the resilience by concerning key productive resources including intellectual, social, environment, human and economic. As a result, more than 50 scientific publications, technology and research transfers, petty patent and reports have been produced from BAC lab. BAC Lab has 11 past and current members in total, comprising of 2 postdoctoral Researchers, 4 higher degree graduates and 5 post graduate students (pHd and Master's programs). In-line with the government plans to transform conventional agro-industries and service sectors toward a value-based and innovation-driven economy, Dr. Sommano and her team try to upgrade plant natural resources through their valuable bioactive ingredients for novel food, feed and pharmaceutical industries along with encouraging manufacturing by-products utilisations.

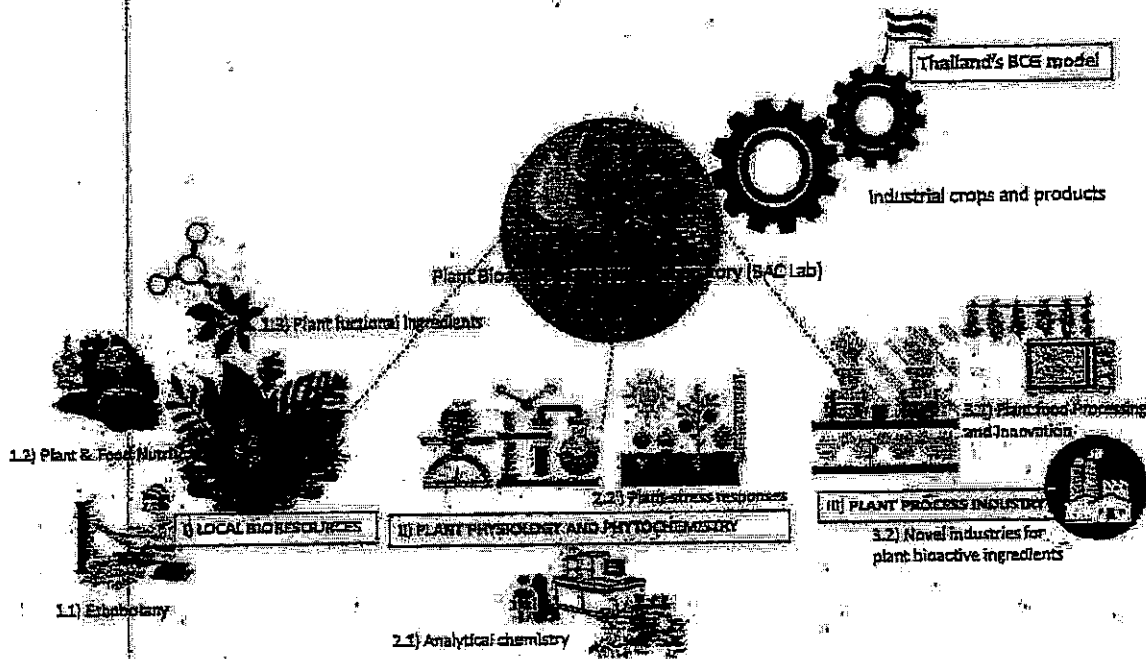
Under her supervision and research expertise, the BAC research themes are divided into 3 major areas and each group members pursue research on different topics, which are inter-correlated. The first area looks at bioresources for bioactive compounds from the local availability. Within this area, Dr. Sommano and her students use ethnobotany tool to acquire the knowledge of plant utilisations including that of edible or utilisable from the locals of northern Thai culture. The nutritional values and phytochemical properties are also accessed with the recommendation of their uses in the different industries. The ultimate purpose is to value-add the almost forgotten plant species that urge local/native plant conservation. The second area highlights physiology and analytical chemistry of plants of the economic importance. Plant responds to biotic or abiotic stresses through bioactive compound biosynthesis. This biochemical mechanism is beneficial in most case for example as elicitors for bioactive accumulation.

However, this would be adversary in the area of post-harvest physiology where over expression of the mechanism could lead to discolouration. Dr. Sommano has looked at these responses in different plants including ornamentals, herb and fresh cuts. Besides, the advance analyses of aromatic crops have also developed at the BAC lab, and the lab is known as one of the leading research groups that document aromatic profiles of specialty Thai spices. Transitioning to



sustainability will require innovation, not just in technological and economic terms but also in governance and culture. The last area is the applied technology and innovation in plant science to the industries. For more than 15 years, Dr. Sommano has worked with plant food industries. One area that always interest food manufacturers is to answer the question whether food processing affect the stability of bioactive ingredients. Through that, BAC has also partnered with the Excellent centre of physics at Walailak University and developed dielectric technology for processing and preserving of the natural ingredients. Dr. Sommano has also wrote comments for novel industries of industrial crops through their functional properties.

The following figure illustrate different areas of research interests in plant bioactive ingredients conducted at BAC lab.



## List of RGJ advisors 2020/2021

Name: Assoc. Prof. Dr. Rodjana Burakham  
Program: Doctor of Philosophy program in Chemistry (International Program) Department: Chemistry  
Faculty: Science University: Khon Kaen University  
Telephone: 0806066598 Email: rodjbu@kku.ac.th  
Keywords: molecularly imprinted polymer; stationary phase; separation; chromatography; pesticide

### Summary of research:

Title: Bio-based molecularly imprinted polymers as stationary phase for chromatographic separation of pesticides

Pesticide residue analysis is becoming one of the most active directions in the field of analytical chemistry. At present, the modern analytical techniques for pesticide detection usually involve chromatographic techniques. The key to chromatographic separation is a sustainable retention and elution process. Choosing the appropriate columns, whether commercial or under development, could be somewhat confusing for the analytical chemists. Because of the pesticide components and their contents in different samples are very different, therefore, modification of analytical conditions depends on types of pesticide residue active ingredients in such interested samples. This research project aims to develop novel stationary phases, based on molecularly imprinted polymers (MIPs), for selective separation of pesticides and overcome the lack of existing columns.

Generally, molecularly imprinting technology is based on the formation of a complex between a target (template) molecule and a functional monomer in the presence of a large excess of cross-linking agent through covalent or non-covalent interactions. After template removal, specific recognition sites complementary in shape, size and chemical functionality to the template molecule are left behind within the polymer. However, MIP preparation based on conventional strategies required large amount of organic or toxic solvents, time-demanding, energy-consuming which end-up in contradiction with the green chemistry viewpoints. To solve these problems, molecularly imprinting technology based on green chemistry principles are applied in the development of novel MIPs. Based on a green synthesis strategy, in this project, biocompatible functional monomer, natural cross-linker, and water as green porogenic solvent will be introduced in MIP preparation process to reduce usage of toxic chemicals and waste prevention. To the best of our knowledge, there is no literature of bio-based MIP as a stationary phase for selective separation of pesticides in real samples. Therefore, biodegradable MIPs in this work would provide a selective and environmentally friendly method to determine the target pesticides.