



## Curriculum Vitae

Institute of Nutrition, Mahidol University (INMU)  
999 Phutthamonthon 4 Rd., Salaya, Phutthamonthon

**Name** Simab Kanwal, Ph.D.

**Email Address** simab.kaw@mahidol.ac.th

**Current position** - Lecturer (Food Chemistry/Biochemistry/Molecular Biology)  
- International Editorial Board Member of journal of Current Biochemistry (Indonesia)

### Education

Post-Doctorate., (Pharmacognosy and Pharmaceutical Botany) – Chulalongkorn University, Thailand

Post-Doctorate., (Molecular Biosciences/Structural Biology) – Mahidol University, Thailand,

Post-Doctorate., (Biochemistry/Molecular Biology) – Chulalongkorn University, Bangkok, Thailand.

Ph.D., (Biochemistry/Molecular Biology) – Chulalongkorn University, Bangkok, Thailand.

M.Phil., (Biochemistry/Molecular Biology) – Quaid-i-Azam University Islamabad, Pakistan.

M.Sc., (Biological sciences) – Quaid-i-Azam University Islamabad, Pakistan.

### Experiences and Trainings

- Principle investigator of government funds
- Reviewer at Bio-protocols, A peer reviewed protocol journal.
- Reviewer at Acta Biochimica Indonesiana, A peer reviewed and open-access journal.
- Scientific Committee Member – 4<sup>th</sup> International and 6<sup>th</sup> National Congress of Wound and Tissue Repair, Iran.
- Adjunct Professor at Mahidol University International College (MUIC), Thailand.
- Assistant Professor of Biotechnology at University of Kotli AJK, Pakistan.
- Writer at Daily Times, Newspaper, Pakistan.
- Course completion on American Chemical Society Leadership Development Courses Engaging Colleagues in Dialogue and Fostering Innovation. American Chemical Society Office of International Activities. Bangkok, Thailand.
- Course completion on Biosecurity/Food Safety Enhancement Program, Quaid-i-Azam University, Pakistan.

### Awards and Distinctions

- High Efficiency Post-Doctoral Fellowship – Chulalongkorn University, Thailand, funded by The Second Century Fund (C2F), Chulalongkorn University, 2021- 2023.
- Post-Doctoral Fellowship – Mahidol University, Thailand, funded by Mahidol University Postdoctoral Fellowship Program 2019.
- Post-Doctoral Fellowship – Chulalongkorn University, funded by Rachadapisaek Sompote scheme, 2014 - 2016.
- Doctoral Fellowship – Department of Biochemistry, Chulalongkorn University, Bangkok, Thailand, funded by Faculty of Science Chulalongkorn University, 2010 - 2013.
- Gold Medalist – Secured 1<sup>st</sup> position in M. Sc (Faculty of Biological sciences), Quaid e Azam University Islamabad, 2007.
- Invited as Guest Speaker – In the International Virtual Conference, the 8<sup>th</sup> Thailand Halal Assembly 2021 (THA 2021) on December 14-15, 2021 in Thailand.
- FAOBMB Best Poster Award at 16<sup>th</sup> FAOBMB Virtual Congress, New Zealand, 20 – 25 November, 2021; (Cytotoxic and Apoptotic Effects Induced by Bin Toxin from *Lysinibacillus sphaericus* in Human Cancer Cells).
- IUBMB MilliporeSigma Virtual Meeting Fellowship – To participate in the 16<sup>th</sup> Congress of Federation of Asian and Oceanian Biochemists and Molecular Biologists meeting to be held on November 22-25, 2021 in New Zealand.
- Invited as Keynote Speaker – In the International Conference on Recent Advances in Biotechnology and Environmental Health Research – SRM Institute of Science and Technology, Chennai, India on October 28-29, 2021.
- Invited as a Judge – At Hult prize on campus competition “Food for Good” at Asian Institute of Technology, Thailand on Dec, 2020.
- Invited as Keynote Speaker – In the International Webinar held by Institute for Research and Community Services – Balikpapan University, Indonesia in 2020; (Conducting Research and community Services During the COVID-19 Pandemic).

- Invited as Guest Speaker – In the 3<sup>rd</sup> International and 5<sup>th</sup> National Congress of Wound and Tissue Repair, in Iran in 2018.
- Best Oral Presentation Award during Young Scientist Program (YSP) in the 24<sup>th</sup> IUBMB and 15<sup>th</sup> FAOBMB Congress, in Seoul Korea in 2018; (Association of GABA shunt pathway with primary C:N metabolism and its role in maintaining intracellular glutamate balance in cyanobacteria).
- Travel award fellowship for YSP and IUBMB conference– In the 24<sup>th</sup> IUBMB and 15<sup>th</sup> FAOBMB Congress, in Seoul Korea in 2018.
- Selected by Council for the Lindau Nobel Laureate Meetings and awarded travel grant by HEC Pakistan – To participate in the 68<sup>th</sup> Lindau Nobel Laureate Meeting, in Lindau Germany in 2018.
- Invited as Young Scientist Speaker – In the 22<sup>nd</sup> International Seminar of Indonesian Society for Biochemistry and Molecular Biology (ISBMB) in Manado Indonesia in 2017.
- Travel award fellowship – From BMB Thailand to participate in Young Scientists Forum, Songkhla Thailand, 2016.
- Travel award fellowship – Got the award of young scientist fellowship to participate in the 25<sup>th</sup> FAOBMB and 43<sup>rd</sup> PSBMB conference, in Manila Philippine in 2016.
- Travel award fellowship – For Young Scientist Program and 16<sup>th</sup> IUBMB conference, in Vancouver BC Canada in 2016.
- Travel award fellowship – For Young Scientist Program and FAOBMB conference, in Hyderabad India in 2015.
- Life time member of Royal Science Society, Thailand.

### Research Interest and Expertise

- Production of Bioactive Plant-based Natural Products in Cyanobacteria and Algae
- Metabolic engineering of Cyanobacteria, Bacteria and Algae to enhance the production of amino acids and organic acids
- Discovery, isolation, purification, identification and standardization of bioactive molecules of food and pharmaceutical interest

### Conference/Congress/Symposium Presentations

- 16<sup>th</sup> FAOBMB Virtual Congress, New Zealand, 20 – 25 November, 2021. (Poster presentation) “Cytotoxic and Apoptotic Effects Induced by Bin Toxin from *Lysinibacillus sphaericus* in Human Cancer Cells”. (awarded FAOBMB Poster Prize)
- Participation in IUBMB-FAOBMB-CBSL Virtual Education Symposium 2021, hosted by College of Biochemists of Sri Lanka, 30 July, 2021.
- Participation in the, Tackling the spread of antibacterial resistance through environmental pathways in Pakistan, Islamabad Pakistan, 12 – 13 February, 2019.
- Conference Secretary- 1<sup>st</sup> International Conference on Natural Sciences at the Interface of Climate Change, Food Security and Sustainability, Kotli AJK Pakistan, 24 - 26 October, 2018.
- Participation in the 3<sup>rd</sup> International and 5<sup>th</sup> National Congress, of Wound and Tissue Repair, Tehran Iran, 26 – 28 September, 2018. (Oral presentation as invited guest speaker)
- Participation in the 68<sup>th</sup> Lindau Nobel Laureate Meeting, Lindau Germany, 23 – 30 June, 2018.
- Young Scientists Program-24<sup>th</sup> IUBMB and 15<sup>th</sup> FAOBMB congress, Seoul South Korea, 2 – 8 June, 2018. (Oral and poster presentation) “Association of GABA shunt pathway with primary C:N metabolism and its role in maintaining intracellular glutamate balance in cyanobacteria”.
- Participation in the the 22<sup>nd</sup> International Seminar of ISBMB, Manado Indonesia 9 – 10 November, 2017 (Oral presentation as young scientist speaker) “Cyanobacteria as Potential Natural Source for Drug Development and Bioactive Compounds Production”.
- Participation in the 25<sup>th</sup> FAOBMB and 43<sup>rd</sup> PSBMB conference, Manila Philippine, 5 – 7 December, 2016. (Oral presentation) “Genetic and nutrient modification of cyanobacteria for enhancement of GABA production”.
- The 5<sup>th</sup> International Biochemistry and Molecular Biology Conference, Hatyai Thailand, Prince of Songkla University and Biochemistry and Molecular Biology Section Science Society, 26 – 27 May, 2016. (Oral presentation) “Involvement of polyamine catabolism in GABA synthesis in cyanobacterium *Synechocystis* sp. PCC 6803”.
- 18<sup>th</sup> Biological Sciences Graduate Congress, University of Malaya, Malaysia, 6 – 8 January, 2014. (Oral presentation) “UV-B induced acclimation of GAD system in unicellular cyanobacterium *Synechocystis* sp. PCC 6803”. (Bronze medal winner)

- 17<sup>th</sup> Biological Sciences Graduate Congress, Chulalongkorn University, Thailand, 8 – 10 December, 2012. (Oral presentation) “Activity and transcriptional regulation of glutamate decarboxylase in *Synechocystis* sp. PCC 6803 under ionic and osmotic stress”.
- 6<sup>th</sup> International Bhurban Conference on Applied Sciences and Technology, Quaid-i-Azam University, Pakistan, 19 – 22 January, 2009. (Oral presentation) “Biological & pharmacological evaluation of *Hedera nepalensis* plant extract and its fractions”.
- 9<sup>th</sup> Biennial PSBMB Conference on Advances in Biochemistry and Molecular Biology, PMAS Arid Agriculture University, Pakistan, 17 – 20 December, 2008.

### List of Selected Publications

1. **Kanwal, S.**, and De-Eknamkul, W. (2023) Disrupted biosynthesis of glycogen and PHB combined with physicochemical factors increased bioproduction of  $\gamma$ -aminobutyric acid and  $\delta$ -aminolevulinic acid in cyanobacteria. *Algal Res. Under revision*. (T1, IF: 5.276).
2. **Kanwal, S.**, and De-Eknamkul, W. (2023) A Non-functional  $\gamma$ -Aminobutyric Acid Shunt Pathway in Cyanobacterium *Synechocystis* Sp. PCC 6803 Enhances  $\delta$ -Aminolevulinic Acid Accumulation Under Modified Nutrient Conditions. *Int. J. Mol. Sci.* 24:1213. (T1, IF: 6.208).
3. **Kanwal, S.**, and Boonserm, P. (2023) Study on Cellular Localization of Bin Toxin and its Apoptosis-inducing Effect on Human Nasopharyngeal Carcinoma Cells. *Curr. Cancer Drug Targets.* 23:388-399. (Q2, IF: 2.907).
4. Velmurugan, R., **Kanwal, S.**, and Incharoensakdi, A. (2022) Non-ionic surfactant integrated extraction of exopolysaccharides from engineered *Synechocystis* sp. PCC 6803 under fed-batch mode facilitates the sugar-rich syrup production for ethanol fermentation. *Algal Res.* 66:102772. (T1, IF: 5.276).
5. Sivaramakrishnan, R., Suresh, S., **Kanwal, S.**, Ramadoss, G., Ramprakash, B., and Incharoensakdi, A. (2022) Microalgal Biorefinery Concepts’ Developments for Biofuel and Bioproducts: Current Perspective and Bottlenecks. *Int. J. Mol. Sci.* 23:2623. (T1, IF: 6.208).
6. Akbar, N., Kanwal, S., Ahmed, MS., **Kanwal, S.**, Jamil, MA., Ezugwu, S., Saleem, M., Khisro, SN., Javed, M., and Ejaz, A. (2021) Biosynthesis of Graphene and Investigation of Antibacterial Activity of Graphene-*Parthenium hysterophorous* Nanocomposite. *Braz. Arch. Biol. Technol.* 64:e21210180. (Q2, IF: 1.18).
7. **Kanwal, S.**, Abeyasinghe, S., Srisaisup, M., and Boonserm, P. (2021) Cytotoxic effects and intracellular localization of Bin toxin from *Lysinibacillus sphaericus* in human liver cancer cell line. *Toxins.* 13:288. (Q1, IF: 4.2).
8. Khorsandi, K., Keyvani-Ghamsari, S., Shahidi, FK., Hosseinzadeh, R., and **Kanwal, S.** (2021) A mechanistic perspective on targeting bacterial drug resistance with nanoparticles. *J. Drug Target.* 29:941-959. (Q1, IF: 5.016).
9. **Kanwal, S.**, and Incharoensakdi, A. (2020) GABA synthesis mediated by  $\gamma$ -aminobutanal dehydrogenase in *Synechocystis* sp. PCC6803 with disrupted glutamate and  $\alpha$ -ketoglutarate decarboxylase genes. *Plant Sci.* 290:110287. (T1, IF: 5.363).
10. **Kanwal, S.**, and Incharoensakdi, A. (2019) The role of GAD pathway for regulation of GABA accumulation and C/N balance in *Synechocystis* sp. PCC6803. *J. Appl. Phycol.* 31:3503–3514. (Q2, IF: 3.404).
11. **Kanwal, S.**, and Incharoensakdi, A. (2016) Characterization of glutamate decarboxylase from *Synechocystis* sp. PCC 6803 and its role in nitrogen metabolism. *Plant Physiol. Biochem.* 99:59–65. (Q1, IF: 5.437).
12. **Kanwal, S.**, Khetkorn, W., and Incharoensakdi, A. (2015) GABA accumulation in response to different nitrogenous compounds in unicellular cyanobacterium *Synechocystis* sp. PCC 6803. *Curr. Microbiol.* 70:96–102. (Q2, IF: 2.343).
13. **Kanwal, S.**, Rastogi, R.P., and Incharoensakdi, A. (2014) Glutamate decarboxylase activity and gamma-aminobutyric acid content in *Synechocystis* sp. PCC 6803 under osmotic stress and different carbon sources. *J. Appl. Phycol.* 26:2327–2333. (Q2, IF: 3.404)
14. Haq, I.U., Ullah, N., Bibi, G., **Kanwal, S.**, Ahmad, M.S., and Mirza, B. (2012) Antioxidant and cytotoxic activities and phytochemical analysis of *Euphorbia wallichii* root extract and its fractions. *I.J.P.R.* 11:241–249. (Q2, IF: 1.951).

### Book Chapter published:

Jantaro, S., and Kanwal, S. (2017) Chapter 8 – Low-Molecular-Weight Nitrogenous Compounds (GABA and Polyamines) in Blue–Green Algae. *Algal Green Chemistry-Recent Progress in Biotechnology*. Amsterdam: Elsevier. 1<sup>st</sup> ed. 149–169. eBook ISBN: 9780444637949.

### Newspaper Articles:

- Food and Foe: Read the Labels, February 5, 2021, Daily Times.
- Gene Technology in Pakistan-Boundaries and problems, December 26, 2019, Daily Times.