

CURRICULUM VITAE



PERSONAL DETAILS			
Full Name	Nadiya Akmal binti Baharum		Title: Dr.
	Citizenship Malaysia	Race Malay	Gender Female
Designation	Senior Lecturer	Date of Birth	26 June 1988
Specialization	Plant Genetic Engineering and Molecule		

Department/Faculty	E-mail Address and Phone Number
Department of Cell and Molecular Biology, Faculty of Biotechnology and Biomolecular Sciences, Universiti Putra Malaysia.	E-mail: nadiya_baharum@upm.edu.my H/P: 010-5754311

ACADEMIC QUALIFICATION			
Certificate/Qualification Obtained	Name of School/Institution	Year Obtained	Area of Specialization
Sijil Pelajaran Malaysia	SM Sains Pasir Puteh, Kelantan	2004	
American Degree Foundation Program	International Education Centre (INTEC), Shah Alam, Selangor	2006	
Bachelor of Science	The Pennsylvania State University, University Park, U.S.A.	2010	Major in Biotechnology, Minor in Microbiology and Chinese Language
Doctor of Philosophy	University of Malaya, Kuala Lumpur	2017	Plant Biotechnology

RESEARCH AND SUPERVISION					
No. of publications	22				
H-index	5 (Scopus)				
Citation	122 (Scopus)				
Number of postgraduate students	Main Supervisor			Co-supervisor	
	Status	PhD	Master	PhD	Master
	Graduated	-	1	1	2

	Passed viva voce (Status: Thesis correction)	1	1		
	On-going	1	2	3	4

LIST OF PUBLICATIONS	
<i>Proceedings</i>	Munusamy, U., Mohd-Yusuf, Y., Baharum, N. A. , Zaidi, K., Nor, S., Abdullah, A., & Othman, R. Y. (2017). ICBA2017-10 Analysis of banana transcriptome in banana roots in response to infection by Tropical Race 4 <i>Fusarium oxysporum</i> f. sp. <i>cubense</i> .
<i>Journal Paper</i>	<p>Establishment of micropropagation protocol and preliminary evaluation of somaclonal variation in micropropagated <i>Musa x paradisiaca</i> cv. 'Tanduk'. (2025). Gee, S.S., Abdul Aziz, J., Putra Shafeeb, M.A., Henry, J. J. J., Lai, W. S., Baharum, N. A.* (Accepted)</p> <p>Antifungal and phytotoxicity of wood vinegar from biomass waste against <i>Fusarium oxysporum</i> f. sp. <i>cubense</i> TR4 infecting banana plants. (2025). Anggrayni, Dilla, Purnama, Indra, Saidi, Noor Baity, Novianti, Fawzi, Baharum, N.A., Mutamima, Anisa. Razali, Nur Amirah Syazwani Binti, Boukherroub, Rabah. <i>Discover Food</i>, 5(1), 98.</p> <p>Rajakumar, P., Baharum, N. A., Lutfi, A. I., Sadali, N. M., Mispan, M. S., Kuang, L. L., ... & Rejab, N. A. (2024). Assessing Cold Plasma's Impact on Banana Growth and Fusarium Wilt Control. <i>The Plant Pathology Journal</i>, 40(5), 463.</p> <p>Teoh, E. Y., Amnan, M. A. M., Mohd Noor, S. N., Hamdan, M. F., Lau, S. E., Baharum, N. A., ... & Tan, B. C. (2024). Beyond the surface: delving into plant signaling during flooding stress. <i>Plant Growth Regulation</i>, 104(2), 617-636.</p> <p>Uda, M. N. A., Jalil, N. A., Muttalib, M. F. A., Abdullah, F., Hashim, U., Gopinath, S. C., ... & Baharum, N. A. (2024). Analysis on Silica and Graphene Nanomaterials Obtained From Rice Straw for Antimicrobial Potential. <i>International Journal of Nanoelectronics and Materials (IJNeaM)</i>, 17(June), 221-228.</p> <p>Mahmoudieh, M., Naghavi, M. R., Sobri, Z. M., Azzeme, A. M., Abd-Aziz, N., Rahman, N. M. A. N. A., ... & Baharum, N. A.* (2024). Biotechnological approaches in the production of plant secondary metabolites for treating human viral diseases: Prospects and challenges. <i>Biocatalysis and Agricultural Biotechnology</i>, 59, 103249.</p> <p>Teoh, E. Y., Teo, C. H., Baharum, N. A., & Tan, B. C. (2024). Expressing banana transcription factor <i>MaERFVII3</i> in Arabidopsis confers enhanced waterlogging tolerance and root growth. <i>PeerJ</i>, 12, e17285.</p> <p>Abdul Rahman, M.S., Hong, Z.X., & Baharum, N.A.*. (2023). <i>In silico</i> characterization of defensin in <i>Musa acuminata</i> DH Pahang (MaDef) provides insight into potential defence-related protein. <i>Malaysian Journal of Biochemistry and Molecular Biology</i> 1, 98-112</p>

Paramalingam, P., **Baharum, N. A.**, Abdullah, J. O., Hong, J. K., & Saidi, N. B. (2023). Antifungal Potential of *Melaleuca alternifolia* against Fungal Pathogen *Fusarium oxysporum* f. sp. *ubense* Tropical Race 4. *Molecules*, 28(11), 4456.

Tang, C.N., Wan Abdullah, W.M.A.N., Wee, C.Y., Yusof, Z.N.B., Yap, W.S., Cheng, W.H., **Baharum, N.A.**, Ong-Abdullah, J., Loh, J.Y., Lai, K.S. (2023). Promoter Cis-Element Analyses Reveal the Function of α VPE in Drought Stress Response of *Arabidopsis*. *Biology* 2023, 12(3), 430; <https://doi.org/10.3390/biology12030430>

Aizuddin, K., Azwa, K. N., Lai, K. S., **Baharum, N. A.**, Thau Lym Yong, W., Hoon, L. N., ... & Abdullah, J. O. (2023). Bamboo for Biomass Energy Production. *BioResources*, 18(1).

Lutfi, A.I., Kritsanayanyong, N. Rahim, S.N.D., Saidi, N.B., Abdullah, M.P. & **Baharum, N.A.*** (2022). Functional prediction of pathogenesis-related 10 in *Musa acuminata* DH Pahang (MaPR-10) for targeted banana adaptation against stresses, *Malaysian Journal of Biochemistry and Molecular Biology* 2, 1-11

Teoh, E. Y., Teo, C. H., **Baharum, N. A.**, Pua, T. L., & Tan, B. C. (2022). Waterlogging Stress Induces Antioxidant Defense Responses, Aerenchyma Formation and Alters Metabolisms of Banana Plants. *Plants*, 11(15), 2052.

Paramalingam, P., Anuar, M. S. K., **Baharum, N. A.**, Abdullah, J. O., Abd Aziz, J., & Saidi, N. B. (2021). In vitro evaluation of antifungal activity of selected Malaysian plants against the wilt pathogen of banana, *Fusarium oxysporum* f.sp. *ubense* tropical race 4. *Malaysian Journal of Science*, 40(2), 16–24

Tahir, N. F., Ruslan, A. W. & **Baharum, N. A.*** (2020). Defining the anti-fungal potential of plant thaumatin-like protein (TLP): A mini review. *Malaysian Journal of Biochemistry and Molecular Biology*, 3, 150 - 159

Chai, S. Y., Tahir, N.F., Abu bakar, N.S., Teo, C. H., Mohd Yusoff, N. F., **Baharum, N. A.**, Saidi, N. B*. (2020). Genome-wide identification and expression analysis of banana RBOH genes in response to *Fusarium oxysporum* f. sp. *ubense* Tropical Race 4. *Malaysian Journal of Biochemistry & Molecular Biology*, 2, 46-52

Mohd-Yusuf, Y., Khalid, N., Al-Obaidi, J. R., **Baharum, N. A.***, Zaidi, K., Salleh, B., Azuddin, N. F., Abdul Aziz, F. A., Munusamy, U. & Othman, R.Y*. (2019) Standardized bioassays: An improved method for studying *Fusarium oxysporum* f. sp. *ubense* race 4 (FocR4) pathogen stress response in *Musa acuminata* cv. 'Berangan'. *Asia Pacific Journal of Molecular Biology and Biotechnology*, 27(3), 101-112.

Munusamy, U., Mohd-Yusuf, Y., Zaidi, K., **Baharum, N. A.**, & Othman, R. Y*. (2019). Evaluation of pathogenicity level of three different strains of *Fusarium oxysporum* in *Musa acuminata* cv. Berangan. *Research Journal of Biotechnology*, 14(3), 12-20.

Munusamy, U., Mohd-Yusuf, Y., **Baharum, N.A.**, Zaidi, K. & Othman, R.Y*. (2019). RT-qPCR profiling of pathogenesis related genes in *Musa acuminata* cv. 'Berangan' seedlings challenged with *Fusarium oxysporum* f. sp. *ubense* tropical race 4. *Pakistan Journal of Agricultural Sciences*, 56(1), 37-42.

Baharum, N.A., Othman, R.Y., Mohd-Yusuf, Y., Tan, B.C., Zaidi, K. & Khalid, N*. (2018). The effect of pathogenesis-related 10 (PR-10) gene in controlling the progression of *Fusarium* wilt on *Musa acuminata* cv. 'Berangan'. *Sains*

	<p><i>Malaysiana</i>, 47(10), 2291-2300.</p> <p>*Corresponding author</p>
<i>Book chapter</i>	Jamil, F. N., Tang, C. N., Saidi, N. B., Lai, K. S., & Baharum, N. A. (2020). Fusarium Wilt in Banana: Epidemics and Management Strategies. In <i>Horticultural Crops</i> . IntechOpen.
<i>Editor</i>	Zawawi, D., Harithuddin, Chong, C.M., Ahmad, N.A., Suriati, Abdarrahim, N.A., Baharum, N.A. , Ponrahono, Z., Md. Khambari, M.N., Mohd Sharef, N., Adam, S.K., Hisham, M.N., Sabri, S., Wan Marzuki, W.J.. (2022). <i>Innovating Education for A Better Tomorrow</i> . Non citation-indexed, 9789672651710, 1-761.

LIST OF SELECTED PRESENTATION

Nadiya Akmal Baharum. Re-evaluating the potential of pathogenesis-related (PR) 10 for Fusarium wilt tolerance in bananas. Malaysia National Banana Congress. 7-8 September 2021. Virtual Conference.

Afiqah Insyirah Lutfi, Siti Nur Diyanah Rahim and **Nadiya Akmal Baharum***. In Silico Analysis and Functional Prediction of Pathogenesis-related 10 (PR-10) in *Musa acuminata* subsp. *Malaccensis*. 8th International Symposium on Applied Engineering and Sciences (SAES2020). 12th–19th December 2020. Virtual Conference.

Nur Fathiah binti Tahir and **Nadiya Akmal binti Baharum***. In-silico Analysis of Potential Anti-Fungal Thaumatin-like Protein (TLP) from *Musa acuminata* ssp. *malaccensis*. 8th International Symposium on Applied Engineering and Sciences (SAES2020). 12th–19th December 2020. Virtual Conference.

Nadiya Akmal Baharum, Rofina Yasmin Othman, Yusmin Mohd Yusuf and Norzulaani Khalid. Pathogenesis-related (PR) 10 as a potential anti-fungal protein for the development of transgenic *Musa acuminata* cv. 'Berangan' against *Fusarium* wilt. Oral presenter at the 20th Biological Sciences Graduate Congress, 9-11th December 2015, Chulalongkorn University, Bangkok, Thailand.

Nadiya Akmal Baharum. Development of transgenic 'Berangan' banana for Fusarium wilt tolerance. Presenter at Simposium Bioteknologi, 20th September 2017, Petaling Jaya, Selangor, Malaysia.

Nadiya Akmal Baharum, Rofina Yasmin Othman, Yusmin Mohd Yusuf, Boon Chin Tan, Kamilatulhusna Zaidi and Norzulaani Khalid. Transgenic 'Berangan' Banana Harboring Pathogenesis-related 10 (PR-10) Gene Showed Delayed Response to *Fusarium oxysporum* f. sp. *cubense* Infection. Oral presenter at The International Congress of the Malaysian Society for Microbiology 2017 (ICMSM2017), 4-7 December 2017, Hotel Bangi-Putrajaya, Selangor, Malaysia.

RESEARCH PROJECTS				
Source of fund	Project Title	Role	Year Awarded	Status
UPM (GP)	Investigating the role of Calcineurin B-like protein (CBL)-interacting protein kinases (CIPKs) in banana via CRISPR-Cas knock-out and over-expression study for improved tolerance against Fusarium wilt disease.	Project Leader	2024	On-going
FRGS	Evaluating the role of beta-aminobutyric acid in the lignification of <i>Dendrocalamus asper</i> plantlets subjected to sodium chloride-induced salt stress	Member	2024	On-going
GP-IPS	Indirect somatic embryogenesis and biochemical profiles of the calli induced from <i>Dendrocalamus asper</i> seed	Member	2023	On-going
Industrial Grant	Tissue culture of selected bamboo species	Member	2021	On-going
ICGEB Grant (International)	Overexpression of rate-limiting enzymes, DBTNBT and DBAT, in <i>Taxus</i> cell suspension culture using CRISPR-Cas9 system as a successful strategy for a substantial increase in Taxol	Member	2023	On-going
UPM (GP IPM)	Functional Characterization of Pathogenesis-related 10 (PR-10) proteins from local commercial banana, <i>Musa acuminata</i> cv. 'Berangan'	Project Leader	2019	Completed
Ministry of Higher Education (FRGS)	Identification and functional characterization of thaumatin-like protein with anti-fungal activity from banana	Project Leader	2019	On-going
Universiti Malaya	Development of improved banana variety through cold-plasma treatment	Co-researcher	2019	Completed
Ministry of Higher Education	Identification and functional characterization of vacuolar processing enzyme (VPE)	Co-researcher	2019	Completed

(FRGS)	responsible for drought in banana			
Ministry of Higher Education (FRGS)	Understanding the regulatory mechanisms of banana group VII ethylene response factors (ERFs) in response to flooding stress	Co-researcher	2018	Completed
Ministry of Higher Education (FRGS)	Understanding the role of FocSix8 gene and other related effector genes that caused pathogenic reaction during Fusarium infection in <i>Musa accuminata</i>	Co-researcher	2018	On-going
Ministry of Higher Education (FRGS)	The Role of Redox Signalling in Basal Resistance Against <i>Fusarium oxysporum</i> f. sp. <i>ubense</i> Tropical Race 4 for Effective Control of <i>Fusarium</i> Wilt in Berangan Banana	Co-researcher	2017	Completed
UPM (GP IPS)	Characterization of Berangan Banana Nadph Oxidase Genes and Their Expression Associated with <i>Fusarium oxysporum</i> f. sp. <i>ubense</i> Tropical Race 4 Infection	Co-researcher	2018	Completed
UPM (GIPP)	Community-based Learning Design in Plant Science: Elevating Student's Interest through Experiential Learning	Co-researcher	2018	Completed

HONOURS, AWARDS AND CERTIFICATIONS				
Name of awards	Title	Award Authority	Award Type	Year
<i>Teaching and Learning Recognitions</i>	Vice Chancellor Fellowship Award (Teaching Category-Young Lecturer, Pure Science)	Universiti Putra Malaysia	Winner	2021
	Putra Innocreative Poster Competition	Universiti Putra Malaysia	Gold Medal	2018

	(Putra Innocreative Carnival in Teaching and Learning (PICTL2018))			
	Putra Innocreative Poster Competition (Putra Innocreative Carnival in Teaching and Learning (PICTL2020))	Universiti Putra Malaysia	Gold Medal	2020
	Putra Innocreative Poster Competition (Putra Innocreative Carnival in Teaching and Learning (PICTL2021))	Universiti Putra Malaysia	Gold Medal	2021
	Putra Innocreative Poster Competition (Putra Innocreative Carnival in Teaching and Learning (PICTL2021))	Universiti Putra Malaysia	Silver Medal	2021
	Putra Innocreative Poster Competition (Putra Innocreative Carnival in Teaching and Learning (PICTL2022))	Universiti Putra Malaysia	Silver Medal	2022

	Putra Innocreative Poster Competition (Putra Innocreative Carnival in Teaching and Learning (PICTL2023))	Universiti Putra Malaysia	Gold Medal	2023
	Penghargaan Sumbangan Cemerlang dalam Inisiatif Pembangunan Akademik dan Kecemerlangan Kepemimpinan Akademik (CADe-Lead)	Universiti Putra Malaysia		2024
	7 th Putra Innocreative Poster Competition (Putra Innocreative Carnival in Teaching and Learning x SULAM Carnival 2025 (PICTL2025))	Universiti Putra Malaysia	Silver Medal	2025
	Pertandingan Amalan Terbaik Inovasi PdP antara PTJ UPM (PUTRA-PINTAR) 2025	Universiti Putra Malaysia	2 nd Runner Up (Individual Category)	2025
<i>Certification</i>	Certified Content Creator for MyDigital Educator @MOHE Program	Ministry of Higher Education		2022
	Google Certified Educator Level 1	Google		2025-2027

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INVOLVEMENT IN TEACHING AND LEARNING			
Role	Title	Organizer	Level
Committee Member	UPM Teaching and Learning Innovation Committee (2019-current) <ul style="list-style-type: none"> • Head of PutraBlast and PTG portfolio (2018-2020) • Head of Safe Exam Browser (SEB) Study Committee (2020-2021) 	-	University
	Member of Jawatankuasa Kecil Kurikulum (JKKK)		University
	Head of Curriculum Committee for the Department of Cell and Molecular Biology, Faculty of Biotechnology and Biomolecular Sciences	-	Department
Taskforces	Members of: a) Penambahan Elemen Kecerdasan Buatan (AI) Dalam Pengajaran Dan Pembelajaran (P&P) Program Siswazah UPM b) Flexible Education and Lifelong Learning (FlexEd) UPM		University
Speaker	Engaging Online Learning with Flippity	Pelitawanis Tenaga Nasional Berhad (TNB) Dua Sentral	National
	Kursus Pemantapan PDPC dan PDPR Sejarah (Catchy PDPR Online)	Majlis Amanah Rakyat (MARA)	National
	"SAFE EXAM BROWSER IN PUTRABLAST"	Department of Cell and Molecular Biology, Faculty of Biotechnology and Biomolecular Sciences, UPM	University
	Engaging Online Delivery	Maktab Rendah Sains Mara (MRSM) Kuala Kubu Bharu	National
	Publishing Your Own Videos: Easy Guide for Beginners	Centre For Academic Development and Leadership Excellence (CADe-Lead)	University
	Sesi Perkongsian Pemenang Pingat Emas PicTL2021	Centre For Academic Development and	University

		Leadership Excellence (CADe-Lead)	
	Introduction to Self-Instructional Materials (SIM)		Faculty
	Kopi Als (Title: Impress, Inspire and Interact with AI-driven Presentations) (2024)	Centre For Academic Development and Leadership Excellence (CADe-Lead)	University
Trainer	PutraBlast Hands-On Tutorial	Centre For Academic Development and Leadership Excellence (CADe-Lead)	University
	'Creating Interactive Content with H5P'	Centre For Academic Development and Leadership Excellence (CADe-Lead)Centre for Academic Development (CADe)	University
	Latihan Penggunaan Sistem PutraBLAST V4 (2023)	Centre For Academic Development and Leadership Excellence (CADe-Lead)	University
	Digital Discovery Carnival (Siri 3: Super SIMple Online Learning) (2023)	Centre For Academic Development and Leadership Excellence (CADe-Lead)	University
	Kursus Asas Pengajaran (KAP) 2022, 2024 and 2025	Centre For Academic Development and Leadership Excellence (CADe-Lead)	University
	Microcredential Bootcamp 2024	Centre For Academic Development and Leadership Excellence (CADe-Lead)	University
	IUCEL x kNovasi 2024	UKM	National
	Masterclass MSC3 – Re-Designing T&L Using AI	UM	National
Jury	International Putra InnoCreative Poster Competition 2020, 2022, 2023 & 2025	Centre For Academic Development and Leadership Excellence (CADe-Lead)	International
	International University Carnival on e-Learning (IUCEL 2022)	MEIPTA, JPT and UPM	International
Expert Reviewer	Pakej Permainan Gamifikasi – “Robobug: An unplugged approach to computational thinking”	-	University

	Pengerusi dan Pakar Teknikal bagi Sesi Penilai Kesetaraan Massive Open Online Course (MOOC)/Microcredentials (MC) bagi Kursus SKP3123 Internalization of Ethics and Civilization in Malaysian		
Moderator	Online Forum : Perkongsian Pengalaman Pembelajaran Teradun Gantian	Centre For Academic Development and Leadership Excellence (CADe-Lead)	University
	International Putra InnoCreative Webinar 2020	Centre For Academic Development and Leadership Excellence (CADe-Lead)	International
	International Putra InnoCreative Poster Competition 2020	Centre For Academic Development and Leadership Excellence (CADe-Lead)Centre for Academic Development (CADe)	International
	International University Carnival on e-Learning (IUCEL 2022) (WebTalk4: Learning Analytics@UPM)	MEIPTA, JPT and UPM	International

<p>PicTL Awards</p>	<ul style="list-style-type: none"> • Learner-Centered Approach for Enhancing Learning Experience in Science Practical Classes - Gold Medal PicTL2018 • STEM's Teaching Challenge: Elevating Plant Science Course through Community Based Learning - Silver Medal PicTL2019 • Empowering Innovative Educators via Substitute Blended Learning (PTG) - Gold Medal PicTL2020 • Implementation of Safe Exam Browser in Universiti Putra Malaysia : Functionality and Challenges - Gold Medal PicTL2021 • Boosting Students' Learning Experience and Motivation using PutraBlast Digital Badge - Silver Medal PicTL2021 • Leveraging Personalized Learning Using Moodle for Beginners - Silver Medal - iPicTL2022 • Virtual Journal Club For Enhanced Students' Interest and Comprehension In Scientific Reading -Gold Medal - PICTL2023 • From Putrablast V3 To V4: Are UPM Lecturers Ready For It? – Gold Medal – PICTL2023 • Enhancing Active Learning In A Plant Tissue Culture Course Through A Whatsapp-Based Quest Mission – Silver Medal – iPICTL2025 	<p>Centre For Academic Development and Leadership Excellence (CADe-Lead)</p>	<p>International</p>
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