

# Dr Mohd Zulkifli Mustafa

Senior Lecturer

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## Mission Statement: BETTER.BEE.HEALTHY

I fight for high quality & original bee products to give **BETTER** income to beekeepers and empower them for **BEE** conservation towards promoting **HEALTHY** community and ecology

### ACADEMIC BACKGROUND

#### Qualifications:

- | Doctor of Veterinary Medicine  
Universiti Putra Malaysia - 2005
- | Doctor of Philosophy (Neuroscience)  
Universiti Sains Malaysia - 2014

#### Academic Publications

- Peer reviewed journals: 25
- Book: 2, Chapter in books:3
- Abstracts / Oral presentations: 22

#### Expertise:

AREA: Neuroscience and Stingless bee  
RESEARCH METHODS: Confocal Microscopy | Tissue Culture | Cancer Modeling | Cognition & Animal Behavioral Study

**Postgraduate Supervisions:** 15 PhD & MSc

#### Intellectual properties :

4 patents, 3 copyrights, 4 trademarks

#### Research Grants

University & National Grants: RM3.5 Million

### MY STORY:

Stingless bees, locally known as *lebah kelulut*, produce a variety of much sought-after products, including honey (madu kelulut), propolis and bee pollen. But, above these immediate products, bees do a lot work in the background to keep our forests in tip top shape. Already one of the most bio-diverse countries on Earth, with a rich array of fauna and flora, bees are integral to Malaysia's biodiversity. Nowadays, stingless bees are an important asset to the growing agricultural demand on pollination for our food security. Thus, beekeeping should be regarded as a prime tool to achieve sustainable development. We owe so much to the tireless, albeit silent and seldom recognized, work of bees. But the number of wild bee colonies here in Malaysia and overseas has been steadily declining, threatened by habitat loss brought about by logging activities, the expansion of residential developments into virgin forests and the use of pesticides on farms. Therefore, an effort to create stakeholders that received direct benefits from the bee is one of the best ways to conserve the bees and honey is sweetest reward offer. However the facts that Malaysian honey is stuck in traditional market due to quality and volume issues hinder the potential of the industry.

The *Reinventing Honey Quality* (RHQ) project is being spearheaded by Dr Mohd Zulkifli Mustafa, a veterinary surgeon with a PhD in brain science. His earlier work on the use of honey to improve memory and learning motivated him to look for ways to increase Malaysia's output of high quality honey.

The RHQ project set out with what seems like a simple-enough goal: to improve the quality and marketability of local stingless bee honey. Beyond this, honey commercialization has helped in generating income to the targeted communities, which is rewarding and thus, indirectly drives appreciation and actions towards bees' conservation. Hence, producing cycle that give benefit to ecology (bees & plants) and community. This is summarize as KELULUNOMIC Model. To date, the industry has seen to catalyse the spill-over impacts in community in relation to new products, social innovations, entrepreneurship, agricultural interest and general well-being as a whole.

Various acts have been implemented since 2013 under RHQ initiative that came up with significant awards winning inventions such as MUSTAFA Hive, SOP Books, HILDA System, HOPE, KEIFh Device and 17 Episode MOOC videos. To date, over 3000 farmers have been trained in the use of the guidelines to become major producers of stingless bee honey in Malaysia. Bearing significant importance in socio-economy sector, the implication of the project is expected to be capable of transforming stingless bee industry into a new job opportunity and sustainable source of income for Malaysian, targeting those from rural areas with low incomes (B40). The commercial stingless bee activities have thus, induced rapid growth of the industry and rural communities. The project has now set a new supply chain for honey industry in Malaysia which can support the honey into becoming national new commodity. This bee works effort by Universiti Sains Malaysia has finally being acknowledged by Pos Malaysia via a special edition national stamp of Lebah Madu Malaysia! His significant contributions in the field have earned him the National Agriculture Innovation Award 2015 (RM35000 cash prize), Gold Medal at Malaysian Agriculture Invention Show 2015, Silver Medal at PECIPTA 2017, State Entrepreneur Icon 2017, Excellent Staff Award 2017& 2018, Best Paper Award at ICHSST, UK 2017 and Community Leadership Award 2019.

**Ref: Prof Dato'. Dr. Jafri Malin Dato' Abdullah.** Professor in Neuroscience, School of Medical Sciences, USM

## Published Books

**Mohd Zulkifli Mustafa** and Siti Amrah Sulaiman (2019); Modul Asas Peternakan Lebah Kelulut Lestari, Penerbit Universiti Sains Malaysia (72 pages)

Syed Yusof Bin Syed Kechik, Mohd Anuar Bin Arshad, Noor Khalidah Binti Abdul Hamid, Muhamad Nur Hazim Bin Mazlan, **Mohd Zulkifli Bin Mustafa**, Fauzan Bin Ismail, Mahamad Hakimi Bin Ibrahim, Mohamad Anuar Bin Kamaruddin, Mohd Hafiidz Bin Jaafar, Mohd Shuhaimi Bin Mohd Nor, Nur Mariyam Binti Musa, Rahmat Bin Ismail, Shukeri Bin A. Rahaman, Zahurin Bin Samad, (2019), University-Community Engagement Leadership Toolkit: Sharing Best Practices, Penerbit Universiti Sains Malaysia 86 pages

## Published Books Chapter

**Mohd Zulkifli Mustafa** (2017): Handbook of meliponiculture: Hiving Method for Successful Meliponiculture-Chapter 7

**Mohd Zulkifli Mustafa**, Nurhidayah Roslan, Jafri Malin Abdullah (2011)- Brain Tumors: Current and Emerging Therapeutic Strategies Targeted Therapy for Gliomas: The Oncolytic Virus Applications, Chapter 21: pg 375-388: ISBN 978-953-307-588-4

**Mohd Zulkifli Mustafa** (2014): Kerjaya dalam Bidang Neurosains; (Chapter 11 pp 76-81): penerbit USM 2014, ISBN 978-983-861-592-1

## Selected Peer review journals

**Mohd Zulkifli Mustafa**, et al (2019): Stingless Bee Honey Improves Spatial Memory in Mice, Probably Associated with Brain-derived Neurotrophic Factor (BDNF) and Inositol 1,4,5- Triphosphate Receptor Type 1 (Itpr1) Genes; *Evidence-Based Complementary and Alternative Medicine*, Vol 2019, Article ID 8258307 (IFxx)

**MZ Mustafa**, NS Yaacob, SA Sulaiman (2018); Reinventing the Honey Industry: Opportunities of the Stingless Bee (2018); *Malaysian Journal of Medical Sciences* 25(4),1-5

**MZ Mustafa**, HS Shamsuddin, A. Ideris, R. Ibrahim, H Jaafar, AM Ali, and JM Abdullah (2009): Viability Reduction and Rac1 Gene Downregulation of Heterogeneous Ex-Vivo Glioma Acute Slice Infected by the Oncolytic Newcastle Disease Virus Strain V4UPM; *BioMed Research International*, Volume 2013, Article ID 248507, 8 pages

**Zulkifli, M.M**, Hilda,S.S., Manaf, A. A., Abdullah, J., Ideris, A., Hasnan, J. (2009): In vitro and In Vivo Studies of Newcastle Disease Virus (NDV) strain V4UPM against Experimental Human Malignant Glioma: *Neurological Research*, Volume 31, Number 1, pp. 3-10(8)

Ahmad F, Seerangan P, **Mustafa MZ**, Osman ZF, Abdullah JM, Idris Z (2019): Anti-cancer properties of *Heterotrigena itama* sp. honey via induction of apoptosis in malignant glioma cells. *Malays J Med Sci.* 2019;**26(2)**:30–39.

Siti Fairuz Abd Malik, Azalina Zainuddin, **Mohd Zulkifli Mustafa**, Mahaneem Mohamed (2019): In Vitro Modulation of Extracellular Matrix Genes by Stingless Bee Honey in Cellular Aging of Human Dermal Fibroblast Cells; *Journal of Food Biochemistry*, ID JFBC-09-19-1042.

Ahmad Zulkifli Mohd Rafie, Amir Syahir, Wan Amir Nizam Wan Ahmad, **Mohd Zulkifli Mustafa**, and Abdul Razak Mariatulqabtiah (2018): Supplementation of Stingless Bee Honey from *Heterotrigena itama* Improves Antiobesity Parameters in High-Fat Diet Induced Obese Rat Model. *Evidence-Based Complementary and Alternative Medicine*, Article ID 6371582, 10 pages

Nur Maisarah Ahmad Jailani, Shuhaimi Mustafa, **Mohd Zulkifli Mustafa** and Abdul Razak Mariatulqabtiah (2019): Nest Characteristics of Stingless Bee *Heterotrigena itama* (Hymenoptera: Apidae) upon Colony Transfer and Splitting. *Pertanika J. Trop. Agric. Sc.* 42 (2): 861 - 869

M Hilmi, A Bakar, MN Norhayati, AS Halim, **Z Mustafa**, Z Idris, S Jaafar (2017): Proliferation and Differentiation of Human Hair Follicle Stem Cells on Chitosan-Skin Engineered Template in Vitro; *International Journal on Advanced Science, Engineering and Information Technology*; Vol.7 (2017) No. 1

Nursakinah Suardi, Bashiru Kayode Sodipo, **Mohd Zulkifli Mustafa**, Zalila Al (2016); Effect of Visible Laser Light on ATP Level of Anaemic Red Blood Cell; *Journal of Photochemistry & Photobiology. InPress* July 2016

Abubakar Tijjani Salihu, Sangu Muthuraju, Abdul Aziz Mohamed Yusoff, Farizan Ahmad, **Mohd Zulkifli Mustafa**, Hasnan Jaafar, Zamzuri Idris, Abdul Rahman Izaini Ghani, Jafri Malin Abdullah (2016); Mouse model of intracerebellar haemorrhage:: *Behavioural Brain Research*, Volume 312, 1 October 2016, Pages 374–384

Nursakinah Suardi, **Mohd Zulkifli Mustafa**, Abdul Latif Ahmad (2016): Effect of 460 and 532 nm laser on erythrocyte Deformability of Anaemic Blood Samples; *Journal of Physical Science, In Press* 2016

Jafri Malin Abdullah, **Zulkifli Mustafa** and Aini Ideris (2014): Oncolytic Newcastle Disease Virus (NDV) intercourse in targeted therapy against proliferation and invasion pathways of Glioblastoma Multiforme: *BioMed Research International*, Volume 2014

Abuzar Elnager, Wan Zaidah Abdullah, Roseline Hassan, Wan Soriany Wan Md. Zain, **Mohd Zulkifli Mustafa**, Zamzuri Idris, Nadiyah Wan-Arfah and Siti Amrah Sulaiman (2015): Fibrinolytic Activity and Dose-Dependent Effect of Incubating Human Blood Clots in Caffeic Acid Phenethyl Ester: In Vitro Assays.; *BioMed Research International*, Article ID 627471, 10 pages

Tee Jong Huat, Amir Ali Khan, Soumya Pati, **Zulkifli Mustafa**, Jafri Malin Abdullah, Hasnan Jaafar (2014): IGF-1 enhances cell proliferation and survival during early differentiation of mesenchymal stem cells to neural progenitor-like cells:. *InPress, BMC Neuroscience* 2014

A. Nurul Atikah, Z. Zulkiflie, M.A.W. Rohaya, S. Sahidan, Z.A. I. Zarina, M.Y. Nurul Yuziana, **M.M Zulkifli** and Z.A. Shahrul Hisham (2014): Identification of Transfection Efficiency Using Qualitative and Quantitative Analyses of Green Fluorescent Protein in CHO Cells: *Journal of Applied Sciences*, In Press 2014

Nor Entan Supeno , Soumya Pati, Raisah Abdul Hadi, Abdul Rahman Izani Ghani, **Mohd Zulkifli Mustafa**, Jafri M Abdullah, Fauziah Mohamad Idris, Xu Han, Hasnan Jaafar (2013): IGF-1 Acts as Controlling Switch for Long-term Proliferation and Maintenance of EGF/FGF-responsive Striatum Neural Stem Cells: *Int J Med Sci* 2013; 10(5):522-531.

Abuzar Elnager, Wan Zaidah Abdullah, Roseline Hassan, Wan Soriany Wan Md. Zain, **Mohd Zulkifli Mustafa**, Zamzuri Idris, Nadiyah Wan-Arfah and Siti Amrah Sulaiman (2013): In vitro whole blood clot lysis for fibrinolytic activity study using D-dimer and confocal microscopy; *Advances in Hematology* 2013, Article ID 814684

Sofian Zarif Mohd, Abdullah Jafri Malin, Rahim AA, Shafee Shazrin Shazira, **Mohd Zulkifli Mustafa**, Razak Salmi Abdul (2012): Cytotoxicity evaluation of vancomycin and its complex with beta-cyclodextrin on human glial cell line: *Pak J Pharm Sci.* 2012 Oct; 25(4):831-7