



**CURRICULUM VITAE**

**NORMAH MOHD. NOOR**

**Professor (Plant Tissue Culture and Cryopreservation)  
Institute of Systems Biology**

Universiti Kebangsaan Malaysia [UKM]  
43600 UKM, Bangi  
Selangor Darul Ehsan, Malaysia  
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**ACADEMIC QUALIFICATIONS**

**B.A. *cum laude***, Macalester College, St. Paul, Minnesota, USA, 1977

**M.S. (Crop Science)**, Michigan State University, East Lansing, Michigan, USA, 1979

**Ph.D. (Seed Science)**, Agriculture University of Malaysia (Universiti Pertanian Malaysia), Serdang, Selangor, Malaysia, 1988

## **CAREER HISTORY**

**1980: Lecturer**, Department of Botany, Faculty of Science, Universiti Kebangsaan Malaysia

**1991: Associate Professor**, Department of Botany, Faculty of Life Sciences, Universiti Kebangsaan Malaysia

**1997: Professor**, Department of Botany, Faculty of Life Sciences, Universiti Kebangsaan Malaysia

## **ADMINISTRATIVE APPOINTMENTS**

**1 Nov 1991 -31 Oct 1997: Coordinator of Plant Biotechnology Laboratory**, Faculty of Life Sciences, Universiti Kebangsaan Malaysia

**1 Oct 1998 - 18 July 1999: Head, Department of Botany**, Faculty of Life Sciences, Universiti Kebangsaan Malaysia

**19 July 1999 - 18 July 2002: Head, Biotechnology Programme**, School of Biosciences and Biotechnology, Faculty of Science and Technology, Universiti Kebangsaan Malaysia

**19 July 2002 - 30 June 2005: Chair**, School of Biosciences and Biotechnology, Faculty of Science and Technology, Universiti Kebangsaan Malaysia

**1 July 2005- 18 June 2012: Founding Director**, Institute of Systems Biology, Universiti Kebangsaan Malaysia

## **AWARDS**

Nominated for Fulbright Scholar Award, 1993

Training Award, Asian Development Bank Programme, Public Service Department of Malaysia, 1993

Nominated for TWAS Young Scientist Award, 1994

UKM Excellent Service Award, 1994

IAEA Scientific Visitor, Wye College, University of London, 1995

Bintang Cemerlang Negeri, Anugerah Negeri, Pulau Pinang, 2001

Darjah Kebesaran Johan Setia Mahkota (J.S.M.), Yang di-Pertuan Agong Tuanku Mizan Zainal Abidin, 2009

Research Awards 2011, Universiti Kebangsaan Malaysia

## **AFFILIATIONS**

Member, International Association for Plant Tissue Culture

Member, International Society for Horticultural Science

Member, Society for *In vitro* Biology

Fellow, Malaysian Scientific Association

Life member, Malaysian Society of Applied Biology

## FUNDED RESEARCH

1. Effects of flooding on different cultivars of soybean (*Glycine max*) [UKM] 1980 - 1982
2. Studies on germinability of winged bean (*Psophocarpus tetragonolobus* L.Dc.) [UKM] 1982- 1983
3. Storage and cryopreservation studies on *Hevea brasiliensis* Muell.-Arg. seeds [Universiti Pertanian Malaysia] IBPGR 1983 - 1987
4. Micropropagation and cryopreservation of *Citrus halimii* 1991 -1993. UKM/FRIM.
5. Vegetative propagation of buluh beting (*Gigantochloa levis*). 1992-1995. UKM/FRIM
6. Storage of mahogany seeds, 1991-1995. UKM/FRIM.
7. *In vitro* studies of mangosteen, 1989-1995. International Foundation for Science, Sweden
8. Micropropagation and cryopreservation of mangosteen, 1989 - 1995. Project J04 In IRPA 01-07-03-007 Programme
9. Seed studies and cryopreservation of several tropical trees. 1990 - 1995. A Project in IRPA 01-07-03-007 Programme
10. Cryopreservation of hazelnut (*Corylus* spp.) seeds, 1993, research carried out in collaboration with Dr Barbara Reed  
USDA, National Clonal Germplasm Repository.
11. Wide hybridization between *Oryza sativa* and *O. minuta*: an attempt to transfer bacterial blight resistance to *O. sativa*, 1992-1995.  
IRPA 01-07-03-007.
12. Micropropagation of *Nephentis gracilis*., UKM/ Department of Agriculture Kilanas, Brunei Darulsalam, 1993 - 1997
13. Genetic diversity and *ex situ* conservation of selected tropical fruit species 1996 - 1999.  
*Ex situ* Conservation Project in IRPA 01-02-02-003 Programme
14. Conservation of *Citrus* Genetic Resources, 1998-1999  
International Plant Genetic Resources Institute
15. Conservation of selected *Citrus* species. 1999-2000  
International Plant Genetic Resources Institute
16. Reproductive biology and conservation genetics of *Garcinia* species from East Malaysia (IRPA 0902020128), 2000-2003
17. Genetic diversity, micropropagation and cryopreservation of selected fruit species (IRPA 0102020026), 1999-2001
18. Conservation genetics of *Nephelium* and *Citrus* species (01-02-02-0003-EA036), 2001-2004
19. Establishment of *in vitro* techniques for genetic transformation of mangosteen (*Garcinia mangostana* L.) (01-03-03-005-BTK/ER/027), 2003-2004
20. Role of pteropodid bats as seed dispersers of Malaysian rain forest trees (IRPA 0902020129, 2000-2003

21. Identification of hyperaccumulator plants for recalcitrants in contaminated soil (IRPA 09-02-02-0082-EA210), 2002-2005
22. Development of *in vitro* techniques for conservation of selected *Citrus* species- (11288/RO-IAEA), 2000-2005, International Atomic Energy Agency (IAEA)
23. Development of advanced technologies for germplasm conservation of tropical fruit species (APO/03/012-IPGR) 2002-2005, IPGRI-ACIAR
24. Mass production of mangrove planting materials *via in vitro* techniques and synthetic seed technology. Universiti Industri Selangor (UNISEL), Selangor State Biotechnology grant
25. Comparative Profiling of insect-degrading proteins from pitchers of *Nepenthes* spp. Fundamental Research Grant RMK -9, Ministry of Higher Education, 2007-2009
26. Characterisation of genes induced during stress in hairy roots of *Polygonum minus*, RMK-9, Fundamental Research Grant RMK -9, Ministry of Higher Education, 2007-2009
27. Penentuan struktur sebatian flavonoid dan aktiviti anti-mikrob beberapa species *Garcinia*. Fundamental Research Grant RMK -9, Ministry of Higher Education, 2007-2009
28. Novel systems biology approach towards elucidation of biosynthetic networks of secondary metabolites, R&D Initiative Malaysia Genome Institute, MOSTI, 2007-2010
29. Molecular characterization of local *Citrus* species. Bioversity International (Formerly known as IPGRI), 2006-2008
30. Comparative genomics for utilization and conservation of *Nephelium* and *Citrus* species. Science Fund, 2007-2009
31. Induction of embryo development to elucidate the molecular biology of somatic embryogenesis in mangosteen, Sciencefund, 2007-2010.
31. Unraveling plant metabolic network towards deciphering genetic blueprint. *Project Arus Perdana* (Research University Grant), 2009-2011
32. Production of high value biomolecules of *Polygonum minus* through integrated approaches. *Project Arus Perdana* (Research University Grant), 2010-2012
33. Next generation genomics of Malaysia Bioresources: exploring the enigmatic biology of *Rafflesia* sp., *Garcinia mangostana* and lichens via transcriptomics and metagenome sequence analysis. *Project Arus Perdana* (Research University Grant), 2010-2012
34. Combined use of proteomic analysis and enzyme activity assays for metabolic pathway analysis in digestive gland of *Nepenthes* spp during digestion of insect. Fundamental Research Grant, 2010-2012, Ministry of Higher Education
35. Dana Ransangan GUP Mapping of metabolites within mangosteen seed using I-MALDI-MS to reveal development pattern. Research University Grant), 2010-2012
36. Research collaboration on Agriculture between Malaysia and CLMV nations. Kementerian Pengajian Tinggi, 2011-2012
37. Improving rice traits related to biotic stress using Agriculture biotechnology, National Academy of Agricultural Sciences, RDA, The Republic of Korea, 2011-2014 (USD 90,000)

## TEACHING (1980 – Present)

### Undergraduate courses:

Developmental Biology, Seed Ecophysiology, Plant Genetic Resources, Forestry Seeds (Univ. Pertanian Malaysia), Plant Biotechnology (Univ. Pertanian Malaysia), Tropical Crops, Experimental Design, Plant Growth and Development, Plant Biotechnology, Plant Physiology, Post-harvest Physiology, Plant Developmental Anatomy, Plant *In vitro* Technology, Plant Biotechnology, Plant Development

**Postgraduate:** Plant Morphogenesis, Fundamentals of *ex situ* and *in situ* Conservation, Molecular Genetics of Plant Development

## GRADUATE THESIS SUPERVISION

### MSc

1. Hamidah Salleh. Micropropagation Cryopreservation of *Citrus halimii*. 1993
2. Abdul Razak Othman. Vegetative propagation of bamboos specifically *buluh beting*. 1995
3. Fadhilah Zainudin. Cryopreservation of embryonic axes of *rambai*. 1996
4. Rahim Aliudin. Cryopreservation of mangosteen shoot tips. 1997
5. Nor-Azza Abu Bakar. Embryogenesis/Organogenesis in mangosteen. 1997
6. Hj. Normah Jamil. Micropropagation of *Nepenthes gracilis*. 1997 (Co-supervisor)
7. Song Beng Kah. Genetic Diversity in *Lansium*. 1999 (Co-supervisor)
8. Yap Lip Vun (UPM). The effects of desiccation, sucrose and abscisic acid on survival of embryos of rubber following liquid nitrogen exposure. 1998 (Co-supervisor)
9. Nor Asmah bt. Hassan. Micropropagation of *Shorea leprosul* and *Aquilaria malaccensis* Lamk. 2000
10. Choo Lee Sian. Use of RAPD to verify apomixes and distinguish two fruit types in *Garcinia mangostana* L. 1998 (Co-supervisor)
11. Chew Poh Chiang. Genetic diversity and *in vitro* study of *Nephelium* spp. 2002 (Co-supervisor).
12. Christine Dawn Fletcher. The role of pteropodid bats as seed dispersers and pollinators of rain forest trees in Malaysia. 2001 (Co-supervisor).
13. Ghalia Musa Merghani Taha. Regeneration of shoot tips of *Citrus madurensis* and *Murraya koenigii*. 2000.
14. Lee Shin Shin. Somatic embryogenesis of *Citrus*. 2003.
15. Omar Mahmoud Saoud Al Zoubi. Cryopreservation of *Citrus hystrix* apices using encapsulation-dehydration technique. 2004

16. Norfadzilah binti Ahmad Fadzil. Reproductive biology of *Garcinia prainiana* and cryopreservation of *G. cowa*. 2005
17. Dorothy Chandralekha. Cryopreservation of *Citrus aurantifolia*, *Fortunella polyandra* and *Citrus hystrix*. 2005
18. Mardaleni. *In vitro* culture and cryopreservation of *Nephelium lappaceum* and *N. ramboutan-ake*. 2005
19. Mohd Khairul Ezam b. Mohd Rasali. *In vitro* culture for the conservation of *Citrus hystrix*. 2007
20. Jane Jeevamoney. *In vitro* regeneration and radiosensitivity of seeds and shoot tips of *Citrus suhuensis*. 2007
21. Emelda Rosseleena Rohani. Organogenesis and somatic embryogenesis of *Garcinia mangostana*. 2008
22. Nashrul Hazremi bin Mohd Nasir. Micropropagation of *Melastoma malabathricum* L. 2008 (Co-supervisor)
23. Choo Wee Kean. Cryopreservation of *Nephelium* spp. 2010
24. Elcy Goh. Molecular Characterization of Local Citrus Species : Phylogenetic relationships as revealed by SSR analysis. 2011
25. Zian Nur Julian Zainol Abidin. Profiling of insect-degrading proteins from pitchers of *Nepenthes*. In progress
26. Ratna Devi a/p Ganeson. *In vitro* studies of mangrove species. In progress
27. Rahmad Akbar. Micropropagation and cryopreservation of *Dimocarpus longan* ssp *malesianus*. In progress
28. Mohd. Azinuddin bin Ahmad Mokhtar. Development of microsatellite marker for broodstock selection. 2011
29. Elviana Maria. Somatic embryogenesis of *Garcinia mangostana*. In progress
30. Hamidun bin Bunawan. Physiology and genetic diversity of *Polygonum minus*. 2011
31. Chua Sik Peng. Effects of preculture, PVS2 and Vit C on the survival of recalcitrant *Nephelium ramboutan-ake* shoot tips after cryopreservation by vitrification. 2010
32. Sri Ajilah Mohd Samsir. Genetic diversity of *Garcinia mangostana*. In progress
33. Noraliza binti Alias. Protein expression in *Swietenia macrophylla* and *Khaya senegalensis* seeds during cold storage. In progress
34. Nur Diyana Kamal Azlan. Understanding embryogenesis in mangosteen using transcriptomics approach. In progress
35. Rahmah Abdul Hamid Alwi. Cryopreservation of shoot tips of *Nepenthes gracilis* by vitrification. In progress
36. Siti Nursyazwani binti Maadon. *In vitro* culture of mangosteen. In progress
37. Hazirah Burkhan. Recovery of *Gracinia mangostana* shoot tips after cryopreservation. In progress
38. Piri Yatesni A/P Sellapan. Optimization of basal salt media, plant growth regulators and carbon source on cell suspension of *Polygonum minus*. In progress
39. Sarah Ibrahim. Cryopreservation of shoot tips of *Garcinia mangostana* using vitrification technique. 2011

## PhD

1. Marzalina Mansor. Storage of mahogany seeds. 1995
2. Mariam Abdul Latip. Wide hybridisation between *Oryza sativa* and *O. minuta*: an attempt to transfer bacterial blight resistance to *O. sativa*. 1995 (Co-supervisor)
3. Yap Lip Vun. Micropropagation and cryopreservation of *Lansium domesticum* and *Garcinia cowa*. 2004
4. Makeen Abdalla Makeen. Physiology of seed dehydration and cryopreservation of selected *Citrus* taxa. 2006
5. Omar Mahmoud Saoud Al Zoubi. Effects of cryoprotectants on survival of shoot tips of selected *Citrus* sp. 2010
6. Dita Agisimanto. Retrotransposon activation and detection during in vitro mutagenesis and plant development in the acceleration of *limau madu* (*Citrus suhuiensis*) improvement. In progress
7. Reyhaneh Rahnamaie Tajadod. Analysis of terpene biosynthesis regulation in *Polygonum minus*. In progress

## Undergraduate supervision

More than 140 undergraduate honours project theses in the fields of plant tissue culture, cryopreservation and seed studies

## THESIS EXAMINATION

### External Examiner for PhD Thesis

1. Chairun Nisa. Development and germination studies of the sugar palm (*Arenga pinnata*) seed. Universiti Pertanian Malaysia, 1994
2. Kow Cheong Wei. *In vitro* selection, regeneration and herbicide toxicity studies in rice callus and suspension cells. Universiti Putra Malaysia, 1998
3. A.K.M. Mohi Uddin. Improvement of organogenesis and development of transformation procedure for cucumber and muskmelon. Universiti Putra Malaysia, 1998
4. Jenimar. Pengektrakan metabolit sekunder daripada kalus dan ampaian sel *Citrus* sp., Universiti Sains Malaysia, 2000
5. K. Nalini. A study on the effect of plant growth regulators on neem (*Azadirachta indica*). **Bharathiar Uni., Tamil Nadu, India**, 2000
6. Liew Teik Kooi. Selection and clonal propagation of *sentang* (*Azadiracata excelsa*). Universiti Sains Malaysia 2000.
7. Aziz Ahmad. Hyocyanine and scopolamine production in *Datura metel* transformed root cultures. Universiti Putra Malaysia, 2000.
8. Jualang b. Gansau. Phyalins production in *Physalis minima* (Linn). Universiti Putra Malaysia, 2001
9. L. Jeyakodi. Asymbiotic seed germination and micropropagation of some orchids. **Bharathiar University, Coimbatore, India**, 2001.

10. Anna Ling. Triterpene Production in *Centella asiatica* callus and cell suspension cultures. Universiti Putra Malaysia, 2004
11. Nallammai Singaram. Preparation of cell suspension culture of *Artemisia annua* for the production of artemisinin. Universiti Sains Malaysia, 2005
12. Erenso Degu Gutema. Seed quality attributes as affected by plant canopy architecture and seasonal variation in soybean. Universiti Putra Malaysia, 2006
13. Harouna Sow. Application of molecular markers (RAPD) in sweet potato (*Ipomoea batatas* L.) germplasm for core collection establishment. Universiti Putra Malaysia, 2006
14. Kim Hamilton. *Ex situ* conservation of Australian *Citrus* species: investigations and seed biology, cryopreservation and *in vitro* culture. School of Biomedical and Biomolecular Science, **Griffith University, Brisbane, Australia, 2007**
15. Hariel Petro Msanga. Seed biology of *Uapaca kirkiana*, *Sorindeia madagascariensis* and *Bridelia micrantha*. **University of KwaZulu-Natal, Durban, South Africa, 2007**
16. Mandana Behbahani. Anti-oxidant and anti-inflammatory activities of leaves, calli and cell suspension of *Barringtonia racemosa*. Universiti Putra Malaysia, 2007
17. Thong Weng Hing. *In vitro* regeneration, somaclonal variant and artificial seed production of *Lobelia chinensis* L. Universiti Putra Malaysia. 2009
18. Nitasha Singh. *In vitro* conservation, ecological mapping with chemical and molecular characterization of *Garcinia* species occurring in Maharashtra. **University of Pune, India. 2010.**

#### **External Examiner for Masters Thesis**

1. Jamilah Ismail. Germination studies and *in vitro* culture of *enau* (*Arenga pinnata*). Universiti Pertanian Malaysia, 1994
2. Nallamal Singaram. Propagation of *Massa Anubia* spp. via tissue culture technique. Universiti Sains Malaysia, 1996
3. Mohamad Suhaimi Othman. Selection and multiplication of asparagus via tissue culture technique. Universiti Sains Malaysia, 1996
4. Cik Afizah Ayob. *In vitro* inoculation of sugar cane tissue culture. Universiti Sains Malaysia, 1997
5. Patra Rina Dewi. Propagasi *Cymbopogon nardus* dan *C. citrates* secara *in vitro*. Universiti Sains Malaysia, 2000
6. Lai Ee May. Micropropagation, callus induction and root culture of *Hyoscyamus niger* L., a temperate medicinal plant. Universiti Sains Malaysia, 2003



7. Koh Wan Yee. Clonal propagation of *Typhonium flagelliforme* using aeration method and detection of cytotoxicity activities. Universiti Sains Malaysia, 2003
8. Lee Wai Leng. Mikropropagasi dan pengesanan sel *Orthosiphon staminars* dan pengesanan asid rosmarinik dalam kultur *in vitro*. Universiti Sains Malaysia, 2004
9. Beverlien Christine Daiman. Somatic embryogenesis and plant regeneration from *Carica papaya* cv Eksotika. Universiti Putra Malaysia, 2005
10. Ma Nyuk Ling. Plant regeneration and optimization of particle bombardment parameters for genetic transformation of Borneo sword (*Aglaonema simplex*), Universiti Malaysia Trengganu. 2007
11. Amyita Witty Ugap. Determination of hydration window for cryopreservation (hwc) of three *citrus* species. Universiti Putra Malaysia, 2008
12. Aini Mohd Zainol Azlin. Somatic embryogenesis from immature male flowers of *Musa spp.* cv Mas and Rastali. Universiti Putra Malaysia, 2008
13. Fatemeh Haddadi. Plant regeneration and 101 heat shock protein analysis of strawberry cv camarosa after gene bombardment. Universiti Putra Malaysia, 2009
14. Suranthran Periasamy. Cryopreservation of oil palm (*Elaeis guineensis* Jacq.) for germplasm conservation. Universiti Putra Malaysia, 2011

### **Examination of undergraduate honours theses**

Examined an average of 8 theses/session of undergraduate honours theses from the Department of Botany and other departments in UKM's Faculty of Life Sciences (until 1999) and School of Biosciences and Biotechnology from 1999 to present

### **CURRICULUM DEVELOPMENT**

Initiated seed ecophysiology course

Member, Special Curriculum Committee, BSc program on cellular and molecular biology

Member, Curriculum Committee, BSc program on plant biotechnology

Member, Curriculum Committee, BSc program on bioinformatics

Chair, Curriculum development/establishment of MSc and PhD Programs in Systems Biology at the Institute of Systems Biology

### **TRAINING AND DEVELOPMENT**

#### **Organization of short courses/workshops**

1. Workshop on Plant Cryopreservation, 18 -25 July 1993

- This workshop was for the graduate students and research assistants at the Plant Biotechnology Laboratory, UKM. Resource person: Dr. Erica Benson, University of Dundee, UK
2. A Course on Cryopreservation of Meristems for Conservation of Plant Genetic Resources, 26 - 30 June 1995  
This course was held for graduate students, research assistants at the Plant Biotechnology Laboratory, UKM and researchers from local universities and institutes. Resource person: Dr. Barbara M. Reed, USDA, National Clonal Germplasm Repository, USA
  3. Seminar and Demonstration on Plant Cryopreservation, 14 - 15 May 1996  
Offered for researchers from UKM, local universities and research institutes. Resource person: Prof. Akira Sakai, University of Hokkaido, Japan
  4. A Short Course on Tissue Culture of Dokong, 16-17 September 1997  
Offered for scientific officers from the Malaysian Department of Agriculture
  5. Several workshops on systems biology and related fields at the Institute of Systems Biology 2005-2010.

## **ORGANISATION OF LECTURE SERIES**

Plant Biotechnology Lecture Series

Lecture Series 1: Seed storage for survival by Prof. H.F. Chin, 24 May 1997

Lecture Series 2: Challenges of biotechnology in future resource management by Dato Dr. Salleh Mohd. Nor, 4 Oct. 1997

**Initiated** lecture series at the Institute of Systems Biology from 2005

## **SCHOLARLY SERVICE**

### ***NATIONAL and INTERNATIONAL COMMITTEES***

1. Head, Panel of Assessors, Industry and Development Grant Scheme (IGS), 2000-2005. Project: Development of Artificial Seeds with Special Reference to Turf Grass. Ministry of Science, Technology and the Environment, Malaysia
2. Scientific advisor and reviewer of applications for research grants, International Foundation for Science, Sweden, 1996-present
3. Preparation of Malaysian Standard Draft: Oil Palm Seeds for Commercial Planting. Standards and Industrial Research Institute of Malaysia (SIRIM), 1987
4. Preparation of Malaysian Standard: Nomenclature for Malaysian Vegetables. SIRIM, 1994

5. Preparation of Malaysian Standard: Specification for DXP Oil Palm Seeds for Commercial Planting. SIRIM, 1995
6. Member, panel of evaluators, R&D Program TropBio Research Sdn. Bhd., 2000
7. Head, Panel for evaluation of Malaysia-MIT Biotechnology Partnership programmes: Natural Products. 2002-2005
8. Member, working group on Vegetable Planting Material. SIRIM, 2000-present
9. Member, panel for IGS project: Development of a testing service for the detection and quantification of genetically modified foods and food components. Malaysian Ministry for Science, Technology and Environment, 2001-2004
10. Member, scientific committee for BioMalaysia conference, 2002
11. Member, interview panel for National Science Fellowship. Malaysian Ministry of Science, Technology and Environment, 2003
12. Member, Selangor Biotechnology Committee. 2004-present
13. Member, panel of advisors, BioSelangor conference. 2005
14. Member, panel of advisors, International Symposium on Bio-Inspired Computing, Universiti Teknologi Malaysia, 2005
15. Search and Selection Process For The CGIAR Science group. 2003
16. Member, Committee of KPIAT & FAO/RAS/186/JPN: National Information Sharing Mechanism on the Implementation of the Global Plan of Action for Conservation & Sustainable use of Plant Genetic Resources (PGRFA). 2004
17. Member Biotechnology Advisory Committee, Ministry of Higher Education, 2007-2009
18. Technical Evaluation Panel member for Science Fund research grants, Biotechnology and Agro Biotechnology, Ministry of Science, Technology and Innovation, Malaysia, 2006-2012
19. Evaluator for Research Grant Universiti Penyelidikan Universiti Sains Malaysia 2008
20. Monitoring panel member for Agro Biotechnology R&D Initiative, Ministry of Science, Technology and Innovation, Malaysia, 2007-2011
21. Member International Scientific Committee, 10<sup>th</sup> International Conference on Molecular Systems Biology (ICMSB 2008), University of the Philippines 25-28 Februari 2008
22. Member International Scientific Committee International Symposium on Cryopreservation of Horticultural Species, April 2009, Leuven, Belgium
23. Member Program Advisory Committee, Malaysian Palm Oil Board, 2008-2010

## **REVIEWER FOR PUBLICATIONS**

### ***International Journals***

*HortScience, Thai Journal of Agricultural Science, Journal New Forests (Kluwer Academic Publisher), Plant Cell Reports (Springer International), Plant Cell, Tissue and Organ Culture (Springer), Plant Genetic Resources – Characterization and Utilization, Scientia Horticulturae (Elsevier). African Journal of Biotechnology, African Journal of Agricultural Research, Australian Journal of Crop Science, Agroforestry Systems, International Journal of Plant Physiology and Biochemistry, Journal of Integrative Biology, Global Science, Scientia Agricola (Brazil), Plant Species Biology*

### **Malaysian Publications**

*Journal of Tropical Forest Science, Journal of Oil Palm Research, Asia Pacific Journal of Molecular Biology and Biotechnology, Malaysian Applied Biology, Sains Malaysiana, Journal of Bioscience, Pertanika Journal of Tropical Agricultural Science, Academy of Science Malaysia Science Journal, Journal of Engineering research and Education (Universiti Malaysia Perlis), CRAUN Sago Research Journal, Sunway Academic Journal*

Manuscript, Dasar-dasar Pengetahuan Tentang Zat Pengatur. Dewan Bahasa dan Pustaka, 1987.

Manuscript, Modul Pengajian Jarak Jauh BB2253 Fisiologi Tumbuhan. UKM, 2000.

### **EXTERNAL ASSESSMENT OF PROFESSORIAL CANDIDATES**

Forestry Faculty, Universiti Putra Malaysia, 1998-2001, 2008  
Universiti Malaysia Sarawak (UNIMAS), 2003  
Universiti Malaysia Trengganu (UMT) 2006-2012

Associate Professor, Griffith University, Brisbane, Australia 2007  
Scientist's Review for Agricultural Research Service, USA, 1999  
Research leader; ARS-X8W-0339A, Agricultural Research Service, USA, 2009

### **AFFILIATIONS**

#### **INTERNATIONAL AFFILIATIONS**

**British Council CICHE Programme on Plant Biotechnology, (Project No. 410). 1990-1994**

Institutions involved:           University of Bath  
  Nottingham Trent University  
  University of Bristol

**USDA, National Clonal Germplasm Repository, Corvallis, Oregon, USA**

Three month attachment to the repository under Asian Development Bank Training Award Programme (PPTP - ADB). 1993

Conducted a short course on cryopreservation at UKM

Contact Person: Dr. Barbara M. Reed

**British Council CICHE Programme on Plant Conservation Genetics (Project No. 432). 1995-1997**

Institutions involved: University of Bristol  
Royal Botanic Gardens, Edinburgh  
Royal Botanic Gardens, Kew

**International Plant Genetic Resources Institute, Rome, Italy**

Co-organised *In vitro* Conservation Workshop, Kuala Lumpur. July 1995  
Contact person: Dr. Florent Engelmann, In Vitro Conservation Officer

**Scientific Advisor, International Foundation for Science, Sweden.**

Evaluation of research proposals in the field of Forestry and Seed Science. 1996 - present

**British Council CICHE Programme on Tropical Seed Technology (Project No. 221). 1996-1998**

Institutions involved: Forest Research Institute of Malaysia (FRIM)  
University of Abertay  
Scottish Crop Research Institute, Dundee

**University of Hokkaido, Japan**

Conducted 2-day seminar and demonstration on cryopreservation at UKM  
Contact person: Prof. Akira Sakai 1996

**International Foundation for Science, Sweden**

Research Grant recipient. 1989 - 1995  
Scientific Adviser to the Foundation. 1996-present

**Wye College, University of London, UK**

IAEA Scientific Visit. 18 Sept. - 10 Oct. 1995

**International Atomic Energy Agency, Vienna**

Recipient of research grants. 2002-2005

**National Institute of Agricultural Biotechnology, Republic of Korea**

Co-researcher on project on molecular characterization of local citrus species. 2007(-2010)

**International Plant Genetic Resources Institute**

*Contracted Consultant for IPGRI-ACIAR Project 2002-2005*

**University of Sheffield 2008-2010**

Metabolite profiling under the Novel systems biology approach towards elucidation of biosynthetic networks of secondary metabolites project, R&D Initiative Malaysia Genome Institute, MOSTI, 2007-2009

*Agreement Institute of Systems Biology (INBIOSIS) and the National Academy of Agricultural Science, Republic of Korea* on Cooperative Research entitled Improving Rice Traits related to Biotic Stress using Agriculture Biotechnology, 2011 (Geran Penyelidikan USD 90,000)

## **MALAYSIAN AFFILIATIONS**

### **Universiti Pertanian Malaysia, Serdang, Selangor.**

Co-supervisor of graduate student Yap Lip Vun

Establishment of in vitro techniques for genetic transformation of mangosteen (*Garcinia mangostana* L.) (01-03-03-005-BTK/ER/027), MOSTI, 2003-2004

Conservation of selected Citrus species. 1999, International Plant Genetic Resources Institute (IPGRI), Rome, Govt of Republic of Korea

### **Forest Research Institute of Malaysia (FRIM)**

Co-researcher on projects on micropropagation and cryopreservation of tropical forest species

Supervision of MSc and PhD candidates from FRIM

### **Department of Agriculture Malaysia**

Project on micropropagation of dokong

### **MARDI**

Top-down IRPA Projek: Establishment of in vitro techniques for genetic transformation of mangosteen (*Garcinia mangostana* L.) (01-03-03-005-BTK/ER/027), MOSTI, 2003-2004

**Informal consultations and advice to companies and research institutes on plant tissue culture**

## **PUBLICATIONS**

### ***Journals: International***

**Normah, M.N. & H.F. Chin, 1989.** Recalcitrant seed storage by partial desiccation technique. *Acta Horticulturae* **253**:258-259.

**Normah, M.N., H. Rosnah & A.B. Noor-Azza, 1992.** Multiple shoots and callus formation from seeds of mangosteen (*Garcinia mangostana* L.) cultured *in vitro*. *Acta Horticulturae* **292**: 87-92.

- Normah, M.N., & M. Vengadasalam, 1992.** Effects of moisture content on cryopreservation of *Coffea* and *Vigna* seeds and embryos. *Cryo-Letters* **13**: 199-208.
- Normah, M.N., & H.F. Chin, 1993.** Lipid and fatty acids changes during storage of *Hevea brasiliensis* Muell.-Arg. seeds. *Seed Research Special Vol. No. 1* : 249-254.
- Reed B.M., **M.N. Normah.** & X. Yu, 1994. Stratification is necessary for successful cryopreservation of axes from stored hazelnut seed. *Cryo-Letters* **15**: 377-384.
- Normah, M.N., B.M. Reed & X. Yu, 1994.** Seed storage and cryoexposure behaviour in hazelnut (*Corylus avellana* L. cv. Barcelona). *Cryo-Letters* **15**: 315-322.
- Normah, M.N., A.B. Nor-Azza & R. Aliudin, 1995.** Factors affecting *in vitro* shoot proliferation and *ex vitro* establishment of mangosteen (*Garcinia mangostana* L.) *Plant Cell Tissue, Organ Culture* **43**(3): 291-294.
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