Malaysian Plant Protection Society
MAPPS Newsletter
MAPPS - *Your Partner For Better Crop Health*

Malaysian Plant Protection Society
ISSN 0127 - 0192
Volume 25, Issue 1 January – June 2012

2012—A Year of Records Broken

by Law Yao Hua (yaohua@upm.edu.my)

As I write, we are entering the fourth quarter of 2012 but already the human civilization has achieved a slew of new records. Some of these were simply amazing, for example the landing of *Curiosity* on the surface of Mars, marking humankind's first touchdown on the red rock. One milestone was duly expected, but received with much less joy: the human population has surpassed the 7 billion mark by the end of 2011.

As wonderful as it is for parents to welcome a new life into their families, they are also forced to face the inevitable challenge of feeding their children and providing for their basic needs. This challenge becomes harder as there many more mouths to feed and less resources to share. Coupled with increasingly intense and frequent natural disasters—some were associated with climate changes—food security is now on the agenda of most nations' policies for the future.

Now, even more than ever before, it is imperative to reduce agricultural losses to pests, environmental degradation and human malpractices. Is this not the time for us who are equipped with the skills and facilities to *protect plants*, to bear the mantle and secure food, fiber and other natural resources for the good of our nation? In this light, MAPPS is well primed to serve as the platform for likeminded scientists, government agencies, industry players and all stakeholders to disseminate and discuss findings and opinions that would further our efforts to protect our current agricultural and natural resources, and to provide a sustainable future. For instance, MAPPS organized three seminars in conjunction with our 35th AGM that addressed stewardship and pesticide use in achieving sustainable agriculture.

Therefore, we implore all members to play an active voice in the Society, and to also utilize the opportunities for public discussion and dissemination of knowledged offered by this newsletter. For starters, this issue publishes the abstracts of five students who presented their studies in the 3rd International Agriculture Student Symposium [Pp 8-9], and the of the winner of Best Student Award in Crop Protection 2011 (Pp 5).

Much thanks to the former Editor of the MAPPS newsletter, Mr. Muhammad Hafidz Abdul Rahman for his contribution and dedication. Much of this newsletter carries his legacy.

Contents

SUBMISSION CALL

We welcome your submission of concise scientific findings, constructive opinions, or even creative writing. Pictures that convey messages pertinent to the Society's cause are also welcomed.

REMINDER

MEMBERSHIP FOR YEAR 2012/2013

Members are reminded to pay their yearly subscription to avoid having their names removed from the membership list. Those who have not paid their subscription for 3 years or more will have their name removed from the membership list. Payment can be made to the **Treasurer, Hon. Secretary or the MAPPS Secretariat (Razali).**

President's Message

Dear Cherished Members of the Society,

Hello! On behalf of the 36th Council, I welcome you. To those who are long-timers, I thank you for your continuing support, and to new-comers, welcome again! Having been a member of this Society for many years, I can assure you that you have made a wise decision in joining our Society.

The Malaysian Plant Protection Society was established in 1976 to serve as a platform to discuss and generate knowledge pertaining to plant protection in Malaysia, and to disseminate such knowledge effectively. Through meetings, seminars and publication like this newsletter, our society has a wide reach, bridging the scientific, industrial, government and grassroot communities. The success of our commitment is reflected in the growing number and diversity of the Society's members.

I joined the Society way back in 1982 and was involved in the organization of the 1st International Conference of Plant Protection in the Tropics (ICPPT) and eventually holding various posts in the council. The Society has developed me substantially and brought the best out of me. I urge the new members to take the opportunity to be actively involved in the activities of the society.

Malaysia has need for better plant protection more than ever before. In the past few decades, Malaysian agriculture has been hard hit by some major pests particularly the Ganoderma in oil palm, leaf sucking insect in rice and vegetables and weed resistance. Some of these we have 'successfully controlled', but many are still serious issues. In addition to these 'familiar' pests, recent years have seen several new pests invading our shores such as the red palm weevil. To tackle these pests, we must confront them with our best tools, our best knowledge and this is where the Society with its diverse and well-qualified members in plant protection can play major roles.

Going forward the Society aims to further consolidate its organization and contribute to the society through various activities planned from time to time.

Last but not least, I hope we will meet in future MAPPS activities. Together, let's grow MAPPS to its true potentials and be the flag-bearers of plant protection in Malaysia!

35th MAPPS COUNCIL MEMBERS

President
Prof. Dr. Dzolkhifli Omar
Universiti Putra Malaysia
(Insect Toxicologist)

Prof. Dr. Dzolkifli Omar, a MAPPS member since 1999, is a Professor in the Department of Plant Protection, Faculty of Agriculture, UPM. A well-established insect toxicologist, he has always contributed his knowledge and services to the scientific community and public through his participation in committees, conferences, seminar, public talks etc. Prof. Dr. Dzolkhifli Omar, or "Prof. Dzol" as he is affectionately called, completed his Diploma in Agriculture at Universiti Pertanian Malaysia in 1972. He furthered his academic training with a Bachelor of Plant and Animal Protection from Louisiana State University, USA in 1978, a Master in Entomology, Purdue University, USA in 1980 and a Ph.D in Entomology, Imperial College, University of London in 1988. Upon his return to Malaysia, his passion and training motivated him to assemble his insect laboratory from ground-up. In addition to his many years of excellent work in pesticides and insect toxicology, he has also amassed a collection of more than 10,000 insect under the Arthropod project; this collection ranks among one of the finest collections in Southeast Asia. With his vast experience and drive for excellence, the Society is proud to have him as a life member, and President of the 35th Council.

Area of expertise and specialization: Pest and Disease Management; Entomology; and Pesticide application techniques.

President-Elect
Prof. Dr. Abdul Shukor Juraimi
Universiti Putra Malaysia
(Weed Scientist and Deputy Dean - Development, Networking and Community)

Academic Qualification

PhD, Agricultural Botany (Weed Science), University of Reading, England, 1997.
Master, Botany (Weed Science), Universiti Kebangsaan Malaysia, 1991.
Bachelor, Agricultural Science, Universiti Pertanian Malaysia, 1988.

Previous Appointment

Tutor, Universiti Putra Malaysia, 1992-1997.
Lecturer, Universiti Putra Malaysia, 1997-2006.

Area of expertise and specialization

Agricultural Sciences; Weed Science and Turfgrass Management, Weed Science and Turfgrass Management.

Hon. Secretary

Dr. Lau Wei Hong
Universiti Putra Malaysia
(Insect Pathologist)

Dr. Lau Wei Hong obtained her PhD in Insect Virology and Molecular Biology in 2002. Since then, she has been with the Faculty of Agriculture, Universiti Putra Malaysia as a lecturer. Dr. Lau manages the Molecular Laboratory which she founded and developed in the Department of Plant Protection. Dr. Lau's research interests have expanded from Virology to Arachnology. She is now working on environmentally friendly insect control methods using beneficial microbes and spider venom components. Dr. Lau's expertise is also recognized by the Department of Wildlife and National Parks Peninsular Malaysia, where she has been contributing to the national inventories from time to time. Furthermore, Dr. Lau is also actively involved in the development and implementation of the ISO Quality Management System at the Faculty since 2004; she is a certified Lead Auditor. An active member of MAPPS since 2005, she has directly contributed to MAPPS activities as an organizing committee member.

Area of expertise and specialization: Insect Disease and Management; Biological control; Genetic Engineering; Arachnology

Treasurer

Dr. Norida Mazlan
Universiti Putra Malaysia
(Pesticide Risk Assessment)

Dr. Norida Mazlan started working as a lecturer in Department of Agriculture Technology, Faculty of Agriculture, Universiti Putra Malaysia since 2006. Prior to that, she has worked at Actacorp Sdn Bhd as Techno-Commercial Executive and Malaysia Cocoa Board as Research Officer. She received her Ph.D. from Imperial College, London. She became a member of MAPPS from 2006 and has been actively involved in society's activities as committee member and now as Treasurer. She has always worked on pesticide related project. During her Master's study, she worked on slow-released herbicide formulation and for her Ph.D., she worked on the issue of pesticide residues in food.

Area of expertise and specialization: Pesticide residues; pesticide risk assessment on plants and insects; Decision support (farm pest management decision analysis).

Assist. Hon. Secretary

Asso. Prof. Dr. Wong Mui Yun
Universiti Putra Malaysia
(Plant Pathologist and Biotechnology)

Academic Qualification

PhD, Plant Pathology, Biotechnology, North Carolina State University, Raleigh, USA, 2004.
Master, Plant Pathology, Universiti Putra Malaysia, 1999.
Bachelor, Agricultural Science, Universiti Pertanian Malaysia, 1994.

Previous Appointment

- Science Teacher, SM Yu Yuan, Sandakan, Sabah, 1994-1995.
- Quality Control Officer, Sinora Timber & Plywood Sdn. Bhd., Sandakan, Sabah, 1995-1996.
- Tutor, Universiti Putra Malaysia, 1999-2004.
- Lecturer, Universiti Putra Malaysia, 2004-2008.
- Senior Lecturer, Universiti Putra Malaysia, 2008-Present

Area of expertise and specialization:
Biological Sciences; Botany, Plant pathology.
Agricultural Sciences; Pest and Disease Management, Pathology.
Biotechnology; Plant Biotechnology, Molecular marker.

Member

Dr. Law Yao Hua
Universiti Putra Malaysia
(Insect Behavioural Ecology)

Dr. Law Yao Hua joined the Department of Plant Protection, UPM in 2011 after he graduated with a Ph.D. in Entomology from the University of California-Davis. Trained as an ecologist, he is primarily interested in investigating the functions and evolution of insect behaviours, particularly that of trophic interactions and sexual conflict. He also applies fundamental aspects of insect behaviours to the sustainable and environmentally-friendly control of agriculture insect pests.

Area of expertise and specialization:
Insect behavioural ecology, cannibalism, community ecology, individual-based modeling.

Member

Dr. Siti Noor Hajjar Md Latip
Faculty of Plantation and Agro-technology,
Universiti Teknologi MARA, Shah Alam

(Agricultural Entomology)

Dr. Siti Noor Hajjar obtained her Ph.D. from UPM (Agriculture Entomology and Insect Genetics). Since joining UiTM in 2007, she is now a senior lecturer in the Faculty of Plantation and Agrotechnology, UiTM Shah Alam, and is also the Head of Centre of Postgraduate Studies there. She has supervised more than 11 postgraduate students in the area of Agricultural Entomology. Furthermore, she represents UiTM as technical board member for the Malaysian Standard of Pesticides and Agrochemicals Preparation and board of member in National Invasive Alien Species. She is working with development of biopesticides and insect population genetics, focusing on paddy pests.

Area o**f expertise and specialization:**

Agricultural Entomology

Member

Mr. Ismail Iberahim
Department of Agriculture , Malaysia

(***Registration & Development Manager***)

MAPPS Secretariat

Mr. Razali Baki
Malaysian Agriculture Research and Development Institute, MARDI
(Assistant Research Officer)

Tel: 03-89416331
Fax: 03-89437714
E-mail: zali@mardi.my

Member

Dr. Mazidah Mat
Malaysian Agriculture Research and Development Institute, MARDI
(Research Officer, Plant Virology and Plant Pathologist)

Mazidah Mat joined MARDI as a research officer in August 2000. She received her Master degree in Plant Virology from Universiti Putra Malaysia in the same year, followed by a Ph.D. in 2012. Her Bachelor Degree in Biochemistry and Microbiology was also obtained from Universiti Putra Malaysia in 1993. Currently, she is a plant pathologist in Rice and Industrial Crop Research Centre (RIC), MARDI HQ, Serdang. Her research area is mainly focused on plant disease etiology and management in industrial crops such as herbs, coconut and sweet potato.

Area of expertise and specialization:
Pest and Disease Management, Plant Pathology and Virology.

Member

Mr. Lee Kam Loong
DuPont Malaysia
(***Registration & Development Manager***)

Since graduating from Universiti Putra Malaysia with a B.Sc. (Horticultural Science) and then a M.Sc. (Agricultural Science) in 2003, Mr. Lee has paved a successful career in the pesticide industry. He has worked with Syngenta Crop Protection (Malaysia) and is now with DuPont (Malaysia). He has extent experience in all aspects of business development and marketing of pesticides, including conducting scientific trials, registering pesticides, demonstrating and launching products, as well as developing labels and marketing materials. Mr. Lee is also well trained in and adheres to multi-national companies' policies and Code of Conduct - uphold of Core Values in Ethics, Safety, Stewardship and People Treatment. He is also Qualified ASSESSOR in Chemical Health Risk Assessment (CHRA). Trained in National Institute of Occupational Safety & Health (NIOSH), and certified by Department of Occupational Safety & Health (DOSH) as a CHRA Assessor.

Area of expertise and specialization:
Pesticide business development and marketing, Chemical Health Risk Assessment in oil palm plantations.

MAPPS Best Student Award in Crop Protection, 2011

Started in 2005, The MAPPS Best Student Award in Crop Protection is awarded annually to the best undergraduate student thesis in Crop Protection. The recipient will received RM1,000 and a certificate of merit. For further details, please contact our Honorary Secretary.

Maisarah bt Burhanuddin

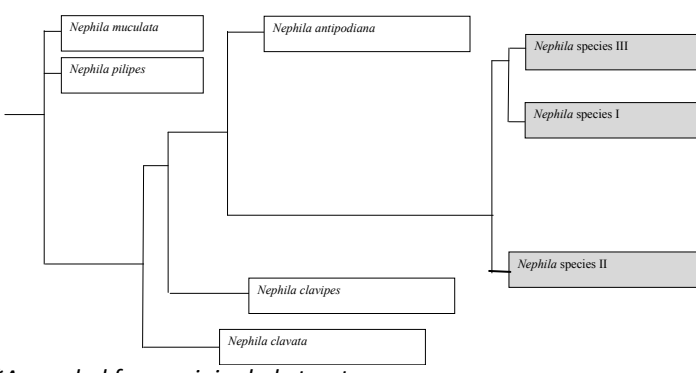
COI GENE ANALYSIS OF FEMALE *Nephilidae* SPIDERS IN LOJING, KELANTAN*

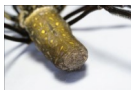
By Maisarah Binti Burhanuddin and Lau Wei Hong
Department of Plant Protection, Faculty of Agriculture,
Universiti Putra Malaysia

Lojing Highlands in Gua Musang, Kelantan is now a center of large-scale agriculture with a variety of highland crops. Spider webs are commonly found in both plantations and residential areas. One of the spider species is the Batik Golden Web Spider, *Nephila antipodiana* (Walckenaer 1842). This species, well-known for its tough, golden orb web (Weems, 2000; Pouchkina, 2003), exhibit high colour polymorphism, particularly in the coloration of the female's abdomen (Barrion and Litsinger; 2005; Harvey et al., 2007, Yong et al., 2010). Cases of polymorphism in *N. antipodiana* have been reported in Kuantan (Pahang), Bachok (Kelantan) and Lata Belantan (Terengganu) (Yong, 2009; Yong *et al*., 2010).

Adult *N. antipodiana*

This study surveyed *N. antipodiana* spiders in Lojing Highlands, recorded colour polymorphism, and used COI gene analysis to validate *N. antipodiana* species identification using coloration. 125 *N. antipodiana* adults were collected in May 2010. Three abdominal colour morphs were identified. Group I (38% of total individuals collected) *N. antipodiana* had a greenish yellow abdomen with yellow spots arranged longitudinally in rows on the dorsal. A "smiley face" pattern was observed at the end of the abdomen. The palps and legs were black in colour without any yellow or red joints as reported by Koh (2002). Group II (40% of total) has dark reddish-brown abdomen with "smiley face" pattern at the end of the abdomen. Group III (22% of total) has yellow abdomen with six pairs of subovate yellow spots dorsally arranged longitudinally in rows and each spot has a black margin, matching the typical *N. antipodiana* described by Yong (2009). Genetic analysis of each group was then conducted. Sequences of COI gene forward primer and reverse primer (Rowan et al., 2005) from each group was aligned against 77 COI gene sequences of *Nephila* spp. such as *Nephila muculata, Nephila antipodiana, Nephila clavipes* and *Nephila clavata*. The results revealed that the *Nephila* spiders captured from Lojing Highlands were closely related to *N. antipodiana* (99% nucleotide sequence match), and were distantly related to *N. maculata* and *N. pilipes.*





**Amended from original abstract*

SELECTED REFERENCES

Barrion A.T., Litsinger, J.A. (1995) Riceland Spiders of South and Southeast Asia. Center for Agriculture and Bioscience,Wallingford, UK

Harvey MC, Austin AD, Adams M (2007). Invertebr Syst 21: 407–451

Pouchkina, N. N., Stanchev, B. S., and Mc Queen-Mason, S. J. (2003) *Insect Biochemistry and Molecular Biology, 33:229-238*

Weems, H. V. and Edwards, Jr. G. B.(2001). DPI entomology Circular Bo.193, Institute of Food and Agricultural Sciences, University of Florida

Yong, H. S. (2009). *Journal of Science and Tenchnology on the Tropics, 5:19-21.*

Yong, H. S. (2010). *Journal of Science and Technology in the Tropics, 6 39-42.*

35th MAPPS AGM 7 June 2012

prepared by the Hon. Assist. Secretary, Dr. Wong M.Y.

The 35th MAPPS Annual General Meeting (AGM) 2012/2014 was successfully held on 7th June 2012, Thursday, 11:30 am at the Agriculture Hall of Faculty of Agriculture, Universiti Putra Malaysia, Serdang, Selangor. A total of 51 MAPPS members, representing the government and private sectors, attended the meeting. Special thanks to the organizing committee for an outstanding work in conducting this AGM meeting.

Changes to the MAPPS Constitution were proposed by the members:

1. Proposed to delete "Vice-President" and replaced with President Elect (Page 49, 6(b)).
2. Proposed to increase expenditure exceeding RM 500.00 shall not be incurred without prior approval of the Council Meeting (Page 50, 6(b)).
3. Proposed to change the AGM to bi-yearly AGM (Page 51, 7(a)(i)).
4. Proposed to elect a Council member and to appoint auditors for two years (Page 51, 7(a)(ii)c).
5. Proposed to have voting members at least double the number of Council members present at the AGM (Page 51, 7(a)(iii)).

Reports by The Hon. Secretary of 34th MAPPS Council, Dr. Lau Wei Hong, Hon. Treasurer of 34th MAPPS Council, Assoc. Prof. Dr. Abdul Shukor Juraimi, and Chairman of the Education Trust Fund Board (ETF), Dato' Tuan Haji Syed Abdul Rahman Syed Abdul Rashid were presented and also distributed in the annual report book.

Activities that were carried out in the 2011/2012 term were as the following:

1. Seminar in conjunction with the 34th MAPPS AGM
2. MAPPS Outreach Program 2011
3. MAPPS National Seminar 2011
4. 3rd International Agriculture Students Symposium (IASS)
5. Best student award in Crop Protection 2010/2011
6. Alumni shared interest group (SIG)
7. MCPA annual dinner 2011

Upcoming events

1. 8th ICPPT will be postponed to 2013
2. Seminar on "The Role of Stewardship in Promoting Food Safety and Security" in collaboration with MCPA in conjunction with 35th MAPPS AGM.

Election of Office-bearers for the 35th MAPPS Council for 2012/2013 was chaired by Dato' Tuan Haji Syed Abdul Rahman Syed Abdul Rashid and recorded by Dr. Wong Mui Yun. The following were elected:

President:	Prof. Dr. Dzolkhifli Omar (UPM)	
President-Elect:	Assoc. Prof. Dr. Abdul Shukor Juraimi (UPM)	
Hon. Secretary:	Dr. Lau Wei Hong (UPM)	
Hon. Assist. Secretary:	Dr. Wong Mui Yun (UPM)	
Hon. Treasurer:	Dr. Norida Mazlan (UPM)	
Council members:	Dr. Siti Noor Hajjar Md Latip (UiTM)	Dr. Mazidah Mat (MARDI)
	Dr. Law Yao Hua (UPM)	Mr. Ismail Iberahim (DoA)
Hon. Auditors:	Assoc. Prof. Dr. Zainal Abidin Mior Ahmad (UPM)	Dr. Rohani Ibrahim

2012 Activities *Seminars - June 2012, UPM*

1 Stewardship - A Global & Regional Overview of Challenges & Activities

by Martin Gibson, Croplife Asia

Mr. Gibson presented an overview of the stewardship mission undertaken by Croplife International, a global federation formed of private companies and associations in plant science. His talk focused on the works of Croplife Asia. Heeding the challenges posed by accelerating human population growth and urbanization, Croplife Asia's vision is to establish food security through innovative agricultural means, and aims to facilitate the innovation of plant science industry to in turn improve farmers' productivity. They recognize that sustainable agriculture requires stewardship of crop protection and plant biotechnology products. Mr. Gibson reminded us of the many threats to sustainable agriculture: water scarcity, yield losses to pests and diseases, increased meat consumption and volatile crop prices. In response, farming practices must become knowledge/technology-driven, more efficient in adapting to global dynamics and also more holistic in its approach and planning. Mr. Gibson emphasized that investment from both public and private sectors are crucial. He then proceeded to report on the successful Container Management program initiated by Croplife International that trained farmers and industry-personnel on the proper management of pesticide containers. Croplife International is also providing many on-site training for farmers on proper pesticide use and regulations.

2 Stewardship: The Malaysian Experience

by Ong Peng Yeo, Malaysian Croplife & Public Health Association

Mr Ong, Chairman of MCPA, presented the activities of Croplife International in promoting and maintaining stewardship of sustainable agriculture in Malaysia. In line with the Croplife International's global Container Management program, MCPA has also greatly increased the recycling of used HDPE pesticide containers in Malaysia. MCPA provides practical training on the ground to farmers on pesticide safety, and also to discourage the use of illegal pesticides. Mr. Ong told of examples where illegal pesticides were wrongly labeled to cheat the unsuspecting farmers. Furthermore, MCPA is advocating the adoption of Good Agricultural Practices (GAP) as a means to ensure food safety and security. Currently, MCPA is in the midst of a 2 year project (2011-2013) to train farmers in Cameron Highlands on GAP.

3 Importance of Pesticide in the Production of Safe Food

by Mohammad Nazrul Fahmi Abdul Rahim, Pesticide Control Division, DOA

Mr. Mohammad Nazrul Fahmi presented a very informative talk about the pesticide regulation in Malaysia and its current status as well as future directions. Pesticide is necessary to secure adequate food production but it can result in contamination of the environment. Pesticide residues on food can also harm human health if it surpasses the maximum residue limit (MRL). In Malaysia, MRLs for each pesticide are determined by the DOA and Ministry of Health (MOH) through a series of vigorous lab and field tests, encompassing residue evaluation and risk assessment. If the pesticide is used as regulated, the harvest should contain residues lower than the MRL and hence is safe for human consumption. Nonetheless, Mr. Nazrul Fahmi emphasized that even in cases where MRL is exceeded, food poisoning after food processing has never been reported. Addressing the current issues of pesticide regulation, he expressed concern that illegal pesticides are still used despite existing legal measures, and also on the lack of initiative to develop pesticide recommendations for minor crops and for minor pests. Moving forward, he suggested that future policies may look into integration of pesticide registration system in the ASEAN countries.

2012 Activities *3rd International Agriculture Student Symposium*

ETF was one of the proud sponsors of the 3rd International Agriculture Student Symposium held on 21 February 2012, Universiti Putra Malaysia. ETF sponsored five BSc. and MSc. Agriculture students, giving these future leaders a valuable chance to communicate their scientific work at an early stage. Their abstracts are presented here.

CHARACTERISTICS of FAST and SLOW GROWING FREE-RANGE CHICKEN in MALAYSIA

A. S. bt Shaharuddin
UPM;
qa_syai89@yahoo.com

In Malaysia, "free-range chicken" is more commonly known as village chicken, village chicken crosses and coloured chickens. They were reared under traditional or commercial free-range systems. The traditional free-range system is usually a backyard operation using traditional village chicken types, without limits to ranging area. The commercial free-range system uses either village chicken crosses or coloured chickens confined within a perimeter fence. In Peninsular Malaysia, it is estimated that over three-quarters of a million rural families are still rearing village fowl using the backyard operation and in flock sizes of 15-20 birds of various ages. Slow grower chickens are normally marketed when they reached 1.5 kg at sixteen weeks old, while the fast growers can be sold at eight weeks old. For economic reasons, commercial farms use village chicken crosses in their operations. The traditional village chicken has a niche market and their meat is believed to be more delicious compared to fast growing free-range chicken.



EFFECTS of DOPAMINE ANTAGONIST on 17β-ESTRADIOL and TESTOSTERONE CONCENTRATIONS in MALAYSIAN MAHSEER FEMALE (TOR TAMBROIDES) during OVULATION INDUCTION

N. Md. Azuadi[1], S. S. Siraj[2], S. K. Daud[3], S. A. Harmin[4], A. Christianus[5], S. Sungan[6], R. Britin[6]
[1, 2, 5]Dept. Aquaculture, Fac. Agriculture, UPM; [2]Dept. Biology, Fac. Science, UPM; [3]Centre of Land and Aquatic Biotechnology, Fac. Science and Biotechnology, Universiti Industri Selangor; [4]Dept. Agriculture, Indigenous Fisheries Research & Production Centre, Tarat, Sarawak; [1]nikbio86@gmail.com, [2]shapor@putra.upm.edu.my

In many teleost, Gonadotropin (GtH) secretion is known to be under dual control. Dopaminergic inhibition is a major barrier in controlling spontaneous spawning in several species of fish including *Tor tambroides*. To investigate whether this is also the case in the Malaysian mahseer (Tor tambroides), female breeders were treated with a salmon gonadotropin releasing hormone analogue (sGnRHa) in combination with dopamine antagonist domperidone (DOM). At the same time sGnRHa or DOM was tested without combination to observe their effects of plasma steroid levels. Ovatide and 0.9% saline solution were used as positive and negative control, respectively. Filial 1 broodstocks were used for artificial propagation after 4-5 years of rearing in cement tanks. The captive broodstocks were given pretreatment with Ovaplant (23.4-44.9 μg kg^{-1}) for 6 weeks prior to induction work. Females were given single injection of Ovatide (0.5 ml/kg BW), sGnRHa (10 μg/kg BW), sGnRHa + DOM (10 μg/kg BW + 5 mg/kg BW) or DOM (5 mg/kg BW). The control group was injected with 0.9% NaCl. Blood samples were taken via caudal veins at 0, 6, 12 and 24 hour post injection. Plasma samples were analysed using enzyme-link immunosorbent assay (ELISA) kits to evaluate 17β-estradiol (E) and testosterone (T) concentrations after administration. No significant changes of plasma steroid levels were observed in the group treated with DOM alone and no ovulation was observed. Combination of sGnRHa and DOM elevated E and T levels, ovulation rate, eggs and larvae quality compared to sGnRHa alone. Treatment with sGnRHa alone produced low quality eggs and larvae, leading to higher larval deformity. In the group treated with saline solution, no significant changes of plasma steroid hormone concentrations and no ovulation were observed. Ovatide was the most successful treatment in inducing ovulation and elevating plasma steroid hormone levels as well as producing highest ovulation rate, egg and larvae quality. The combination treatment was found to be more potent in inducing ovulation as compared to sGnRHa alone or DOM alone. In conclusion, our results suggest that dopaminergic inhibition is a major barrier in inducing spontaneous spawning in captive mahseer.

USE of LIQUID INOCULUM in CULTIVATION of the GREY OYSTER MUSHROOM *Pleurotus sajor-caju* for MAXIMUM YIELD

B. T. Zhou *UPM; tzezhou89@hotmail.com*

The use of liquid inoculum as mushroom spawn is becoming a trend in the mushroom industry. In this project, the preparation of liquid spawn for the cultivation of the grey oyster mushroom, *Pleurotus sajor-caju* to result in maximum mushroom yield was investigated. PL-27 strain was selected in this study as it is one of the most commercialized strains employed in the Malaysian oyster mushroom industry. The growth rate of PL-27 as measured by mycelial biomass in potato dextrose broth under stationary and shaken culture was compared for a period of 20 days. The suitability of molasses as a commercial substrate for liquid inoculum preparation in the cultivation of PL-27 was studied against that of potato dextrose broth as a control. Homogenization of the mycelium with varying durations from 50-600 seconds was carried out to examine the effect of the shearing force on the viability and mycelial biomass production. Fruiting tests that included time of primordial initiation, number of flushes and yield were carried out using the above treatments in comparison of liquid versus solid spawn.

SHADING EFFECT ON THE GROWTH AND QUALITY OF BERMUDAGRASS CULTIVARS FOR FOOTBALL FIELD

N. H. binti Md Yunos[1] and A. S. Juraimi *Fac. Agriculture, UPM*

Bermuda grass (Poaceae) is a popular warm season turf grass. Turf grasses function as vegetative ground cover. Usually Bermuda grass is used in sport fields, lawns, parks, golf courses and as general utility turf. The high wear-tolerance and recuperative ability of Bermuda grass makes it a favourite for football. However, Bermuda grass has been reported to be less shade tolerant. The increase use of covered stadium necessitates selection, development and assessment of shade tolerance of Bermuda grass cultivars. It is necessary to evaluate the effect of shading on the growth and quality of Bermuda grass cultivars and identify the most shade tolerant Bermuda grass cultivar. Four cultivars namely Greenlees Park, Bermuda 419, sample from Ladang 10 UPM and sample from Melaka will be tested. The turf will be established under full sunlight for one month and then subjected to four shading/full sunlight treatments (3, 6, 9, 12 hour/day) where leaf width, leaf length, internodes length, leaves colour, shoot density, uniformity, fresh weight and dry weight of shoot and root and root volume will be assessed. It is expected that turf grown under long duration of sunlight will have good quality compared to turf grown under short duration of sunlight (under shade). It is also expected that shade tolerant Bermuda grass cultivar could be identified.

BUYER-SUPPLIER RELATIONSHIP: A PRELIMINARY STUDY of the MALAYSIAN PINEAPPLE INDUSTRY'S SUPPLY CHAIN

N. H. Kamarulzaman[1], S. D. Rajendran[2], N. M. Nawi, Z. Mohamed

Dept. Agribusiness and Information System, Fac. Agriculture, UPM; [1]nitty@agri.upm.edu.my; [2]salini_16@yahoo.com

Buyer-supplier relationship is a critical success factor for supply chain performance. A long-term relationship between buyers and suppliers allows the partners to gain advantages that may not be realized under a traditional relationship. Long-term relationship positively affects both the upstream and downstream activities in industries. Many studies indicated that there are many factors that influence long-term relations between buyers and suppliers. The main objective of this study was to investigate buyer-supplier relationship in enhancing supply chain activities of pineapple industry in Malaysia. A pilot survey was conducted to collect data from 17 pineapple growers in Johor using structured questions. Data was analyzed using descriptive analysis and crosstab analysis. The preliminary results indicated that the growers were engaged in non-contract farming and maintained the relationship with their buyers for more than 10 years. This was due to several factors such as trust, commitment, satisfaction, communication and reputation. Based on the findings, the growers in the Malaysian pineapple industry have established a long-term relationship with other players in the pineapple supply chain. We conclude that all the players must give high consideration on these factors in order to enhance successful buyer-supplier relationship and improve the supply chain performance.


A.S. Shaharuddin


N. Md. Azuadi


B.T.Zhou


N.H.Md.Yunos


S.D.Rajendran

Upcoming MAPPS Events

Postgraduate Symposium on Plant Protection

Date : 26 August 2013

Venue: Residence Hotel UNITEN, Bangi, Selangor

This is a symposium open to all post-graduate students in Malaysia to present their work on plant protection. Please check the following website for details.

http://www.mapps.org.my

8th International Conference on Plant Protection in the Tropics

Date : early April 2014

Venue: Kuala Lumpur

The much anticipated ICPPT is back! The Organizing Committee is busy making this the best ICPPT ever. Up-dates will be posted on the follow-ing website. Stay tuned!

http://www.mapps.org.my