出國報告（出國類別：國際會議）

赴馬來西亞參加「第 11 屆亞洲養蜂大會國際研討會」報告

服務機關：行政院農業委員會苗栗區農業改良場
姓名職稱：宋一鑫　副研究員
派赴國家：馬來西亞
出國期間：101 年 9 月 24 日至 10 月 3 日
報告日期：101 年 11 月 13 日

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行政院及所屬各機關出國報告摘要

第 11 屆亞洲養蜂大會研討會假馬來西亞燈嘉樓舉辦，住宿及上課地點均在登嘉樓 Primula 飯店舉行，參加的與會人員有超過 20 個國家，約二百多位人員。大會舉行期間為 2012 年 9 月 28 至 10 月 2 日，此研討會會議議程包含 12 個主旨發言人報告，6 個主題報告包括蜜蜂蟲害及疾病、授粉與蜜源植物、蜂針療法、蜜蜂蜂產品、蜂膠論壇、永續養蜂及蜂蜜採收共接受超過 100 篇報告人申請，以及 37 項海報展示等。涵蓋亞洲地區蜜蜂物種生物學、生態學、生物多樣性、病蟲害防治、授粉、蜂產品及蜂療等廣泛性討論與研究概況，除提供相關研究單位與學術團體參與發表討論外，亦有來自馬來西亞、土耳其、韓國、日本、伊朗、中國及台灣等二十餘個單位展示養蜂之蜂產品及研究設備。透過本次會議，將台灣的研究成果發表與各國分享，並拓展國際視野及國際交流機會。此次會議另外開設 6 個前研討會主題，供參加者自由報名參加，是一個適合參與國際交流學習的機會。馬來西亞自然資源豐富且多樣，具有研究及經濟利用價值潛力，近年來該國重視國際化、英文教育，並積極投入觀光業，對台灣來說，馬來西亞推國際化過程中有一些值得借鏡的地方。

壹、研習目的

亞洲養蜂大會研討會為亞太地區每 2 年舉辦一次的國際性研討會，今年第 11 屆假馬來西亞燈嘉樓舉辦，此會議議題涵蓋亞洲地區蜜蜂物種生物學、生態學、生物多樣性、病蟲害防治、授粉、蜂產品及蜂療等廣泛性討論與研究概況，除吸引亞太、歐美地區相關研究單位與學術團體參與發表討論外，亦有展示養蜂之蜂產品及研究設備，是一個適合參與發表研究成果並與國外專家當面建立交流的機會。透過本次會議，將台灣的研究成果發表與各國分享，並幫助鄰近的開發中國家發展先進農業科技，拓展國際視野及國際交流機會。此次會議另外開設 6 個前研討會主題，供參加者自由報名參加，是一個適合參與國際交流學習的機會，從學習國外其他國家相關議題的研究發展應有助於增加以後教育與推廣上的經驗累積。

貳、行程紀要

本次「第 11 屆亞洲養蜂大會國際研討會 (11th Asian Apicultural Association (AAA) Conference)」自 101 年 9 月 25 至 10 月 2 日一共八天，於馬來西亞登嘉樓 Hotel Primula 舉行，活動內容包括會議前研討會 (Workshop)、會場展示 (Api Expo)、會議 (Conference) 等，會議主辦單位為馬來西亞蜜蜂研究團體 (Malaysian Bee Research and Networked Team)，贊助單位有蘇丹米贊基金會 (The Sultan Mizan Foundation)、登嘉樓州政府 (Terengganu State Government)，詳細活動行程及會議議程如下：

日期/時間	議題/活動
9 月 24 日 (星期一)	由桃園機場出發，經馬來西亞吉隆坡機場轉國內線班機，抵達登嘉樓 Kenangan Hotel 住宿。
9 月 25－27 日 (星期二至星期四)	

08：00－17：00	會議前研討會 ● Workshop 1：熱帶蜂蜜特性分析 Dr. Arnie Dubeche。 ● Workshop 2：亞洲蜂蜜品嘗及評價 Dr Patricia Vit。 ● Workshop 3：蜂針療法 Dr. Stefan Stangaciu。 ● Workshop 4：永續性亞洲蜜蜂及無針蜂飼育訓練課程 Dr. Gard Otis。 ● Workshop 5：運用 GPS 導航採收 Melaleuca 及 Acasia 蜂蜜技術 Dr. Makhdzir Mardan (取消)。 ● Workshop 6：東南亞無針蜂鑑定及馴養展示 Dr. Deborah R. Smith。
9 月 28 日 (星期五)	
8：00－09：00	會議報到
15：00－17：00	開幕式 Api Expo 會場蜂產品展示
19：30－22：00	歡迎晚宴
9 月 29 日 (星期六)	
08：00－10：00	會議報到
08：30－10：30	會場 1 主持人: Prof. Dr. Gard W. Otis 致詞: Dr. Makhdzir Mardan 主旨發言人 1: Genomic Imprinting in the Honey Bee. Prof. Dr. Benjamin Oldroyd (澳洲) 主旨發言人 2: Conservation and Utilization of Stingless Bees for Pollination. Dr. Cleofas R. Cervancia (菲律賓) 主旨發言人 3: How Good Is Your Honey? Arne Dubeche (德國) 主旨發言人 4: Factors for success in beekeeping development. Nickola Bradbear (英國)
11：00－13：00	蜜蜂蟲害及疾病 I (會場 1) 主持人: Prof. Dr. Tan Ken (中國) 1. Age-Related Learning Deficits Can Be Reversible In Honeybees *Apis mellifera* . Nicholas Baker (美國) 2. Pathogenecity of American Foul Brood (AFB) Disease of *Apis*

	mellifera Linnaeus to *Apis cerana* Fabricius. Dr. Alejandro C. Fajardo Jr. (菲律賓) 3. The Control of Varroa Destructor Using New Formula Of Oxalic Acid in Honeybee Colonies. Chun-Ting Chen (台灣) 4. Foraging Cycle of Asiatic Honeybee *Apis cerana* in Relation To Qualitative and Quantitative Variations In Floral Rewards Of Some Plants. D. P. Abrol (印度) 5. Screening and identification of differentially expressed genes from honey bee, *Apis mellifera* , infected with *nosema ceranae* by suppression subtractive. Chung-Hsiung Wang (台灣) 6. Diversity of stingless bees (Hymenoptera: Apidae) and their foraging plants in India. Dr. Ataur Rahman (印度) 7. Localization of deformed wing virus (DWV) and Korean sacbrood virus (KSBV) in olfactory organs of honeybees. Dr. Hyung-Wook KWON (韓國)
11：00－13：00	授粉與蜜源植物 I (會場 2) 主持人: Prof. Dr. Cleofas R. Cervancia (菲律賓) 1. A preliminary study on the collection of pollen by honey bees (*Apis mellifera*) in umt mangrove areas. Roziah Ghazi (馬來西亞). 2. Indigenous honey-bees and potential bee-plants from garhwal himalaya, uttarakhand, India. Dr. Prabhawati Tiwari (印度). 3. Studies on seasonal foraging cycle of *Apis cerana indica* in relation to some nectar and pollen yielding plants of Bangalore, India. Dr. M.S.Reddy (印度). 4. The study of dust pollution on the longevity of Iranian bee (*Apis mellifera meda*). Dr. Mohamad Bagher Farshineh (伊朗). 5. Significance of short-chain (aliphatic) fatty acids in honey, medium-chain fatty acids in royal jelly and long-chain fatty acids in pollen. Xing'an Li (中國). 6. Resource partitioning of bee pollinators and visitors on *coffea liberica* w. Bull ex *hiern* var. *liberica* in Lipa, Batangas,

	Philippines. Analinda C. Manila-Fajardo (菲律賓). 7. Effect of storage temperature on stale flavor formation in lotus bee pollen. Xiang Xu (中國).
14：00－16：00	蜜蜂蟲害及疾病 II (會場 1) 主持人: Dr. Osman Kaftanoglu (土耳其) 1. How do Honeybees Distinguish Yellow or Red Flower from Green Leaves in their Green-red Color-blindness? Dr. Masami Sasaki (日本) 2. Genetic structure of *Apis dorsata* populations from Terengganu, Malaysia. Najmeh Sahebzadeh (伊朗). 3. Antioxidant properties and angiotension i-converting enzyme inhibitory activity of bee-queen-larva protein hydrolyates. Dr. Chi-Chung Peng (台灣). 4. Optimization of conditions for assaying activity of acetylcholinesterase in *Bombus hypocrita* (hymenoptera: apidae) and its sensitivity to insecticides. Dr. Jie Wu (中國). 5. The effect of population size on hygienic behavior of Iranian bee (*Apis* m. *meda* L.). Dr. Mohamad Bagher Farshineh (伊朗). 6. A novel pattern of vitellogenin gene transcripts in Asian honey bee workers, *Apis cerana*. Dr. Zhi Yong Li (中國).
14：00－16：00	授粉與蜜源植物 II (會場 2) 主持人: Prof. Dr. Tahmasebi (伊朗) 1. Pollination crisis-a threat to global food security. D.P. Abrol (印度). 2. Current status of insect pollinators use in apple crop in Korea. Yoon Hyung Joo (韓國). 3. Influence of storage temperature on discoloration in lotus bee pollen. Xiang Xu (中國). 4. A study of pollen yielding plants, the difference after a span of 18 years in Bengaluru district, Karnataka, India. Mary Scinthia James Devan (印度). 5. The importance of honeybees (*Apis mellifera* L., *Apis cerana*

	F.) And other insects to crop pollination in Vietnam. Dr Hanh D. Pham (越南). 6. A study on the honeybee and bumblebee pollination for facility tomatoes in the subtropical climate area of Taiwan. Dr. I-Hsin Sung (台灣). 7. Diversity of Cambodian Bees. Prof. Seunghwan Lee (韓國).
16：30－18：30	蜜蜂蟲害及疾病 III (會場 1) 主持人: Dr. Zachary Huang (中國) 1. The effects of sugars, feeding regimes and feeding intervals on the development of honey bee (*Apis mellifera*) larvae reared in Vitro. Osman Kaftanoglu (土耳其). 2. Genetic diversity in *Apis mellifera meda* population by rapid markers. Nematollah Asadi (伊朗). 3. Heritability of honey production, defense and swarming behaviour in Iranian honeybee (*Apis mellifera meda*) colonies. Prof. Dr. Gholamhosein Tahmasbi (伊朗). 4. Applications of ultra-rapid pcr and lamp for the detection of pathogens in honeybee. Prof. Dr. Byoungsu Yoon (韓國). 5. Communication in absconding swarms of the red dwarf honeybees, *Apis florea*. Orawan Duangphakdee (泰國). 6. Screening and identification of differentially expressed genes from honey bee, *Apis mellifera*, infected with *Nosema ceranae* by suppression subtractive hybridization. Yu-Shin Nai (台灣). 7. Phospholipids composition of bee pollen from different botanical origins. Xiang Xu (中國).
16：30－18：30	蜂療法 I (會場 3) 主持人: Dr. Siti Amirah (馬來西亞) 1. Honey Inhibits Elevated Levels of Matrix Metalloproteinase-9 (MMP-9) in vitro and in vivo: a New Strategy for Reduction of Wound Inflammation. Dr. Juraj Majtan (斯洛伐克). 2. Honey supplementation ameliorates hippocampal oxidative

	stress in male rats subjected to prenatal restraint stress. Mohd Nizam Haron (馬來西亞). 3. Apitherapy for treatment of metacarpal and metatarsal wounds in donkeys. Prof. Dr. Haroun Ali Youssef (埃及). 4. Method of evidence-based apitherapy research studies. Timucin Atayoglu (土耳其). 5. Healing efficacy of honey on burn wounds. Dr Bhushanam M (印度). 6. Tualang honey supplement improves memory function and reduces hippocampal neuronal loss in ovariectomised rats exposed to social instability stress. Badriya Al-Rahbi (馬來西亞). 7. Bioassay for the determination of antimicrobial activity to various types of *Apis* honey collected from India. Dr H R Bhargava (印度).
18：30－19：30	AAA 會員國年會
9 月 30 日 (星期日)	
08：00－10：00	會議報到
10：30－12：30	會場 1 主持人: Prof. Dr. Matsuka (日本) 主旨發言人 5: DNA Studies on the Asian Honeybees: Past Successes, Future Challenges. Deborah R. Smith (美國). 主旨發言人 6: The golden Rules and Principles of Apitherapy (healing with bee products). Stefan Stangaciu (羅馬尼亞). 主旨發言人 7: Sensory Honey Writing. Dr. Patricia Vit (委內瑞拉). 主旨發言人 8: Beneficial Effects of Propolis in Health and Disease. Dr. Yungsoo Jin (韓國).
10：30－12：30	蜜蜂蜂產品 I (會場 1) 主持人: Dr. Masami Sasaki (日本) 1. Authentication of the origin of chinese honey by instrumental and chemometrics -lanzhen chen (China). Lanzhen Chen (台

	灣). 2. Sensitivity to sucrose in *Apis cerana* compared to *A. mellifera* In China. Dr. Zachary Huang (中國). 3. Lipid peroxidation in selected tissues of rats treated with honey and nicotine. Dr. Nooraain Hashim (馬來西亞). 4. Skin test reactivity to honey bee derivatives and honey bee by products (honey, royal jelly and bee pollen). Mai Shihah Binti Abdullah (馬來西亞). 5. Isolation and identification of enterococcus sp. From honey stomach of giant honeybee *Apis dorsata* in kedah state Of Malaysia. Naser Tajabadi (伊朗). 6. Preliminary study on the effects of nicotine and Tualang honey on rat's sperm parameters. Noorhafiza Rozali (馬來西亞).
10：30－12：30	蜂療法 II (會場 3) 主持人: Dr. D. P. Abrol (印度) 1. Honey supplementation during prenatal restraint stress ameliorates hippocampal oxidative stress in female rats. Dr Mahaneem Mohamed (馬來西亞). 2. Tensile strength evaluation using gelam honey and manuka honey on incision wound model. Mohd Hafiz Bin Mohd Jaafar (馬來西亞). 3. Allergic pollen calendar of kayser? Atmosphere. Sibel Silici (土耳其). 4. Tualang honey (Agro mas) reduces oxidative stress in postmenopausal women. Dr. Nazlahshaniza Shafin (馬來西亞). 5. Honey supplementation improves weight gain and suppresses hepatomegaly in petrol intoxicated Sprague-Dawley rats. Dr Murtala Bello Abubakar (馬來西亞). 6. Antibacterial Activities of Selected Turkish Honey Against Pathogenic Bacteria. Mohd Izwan Bin Zainol (馬來西亞).
10：30－12：30	蜂膠論壇 (會場 4)

	1. Anticholinestase Activities of Organic Extracts of Propolis Samples. Bong Hoo Lee (韓國). 2. Antiviral activity of Propolis. Dur-Han Kwon(韓國). 3. Inhibitory effect of honeybee water-soluble propolis on RANKL-induced osteoclast differentiation. Junwon Lee (韓國). 4. Chrysin with anticancer activity and a candidate for standardization of Chinese Propolis. Chia-Nan Chen (台灣). 5. Artepillin C, A major ingredient of brazilian propolis, induces a pungent taste by Activating Trpa1 Channels. Taketoshi Hata (日本).
13：30－16：00	蜜蜂蟲害及疾病 IV (會場 1) 主持人: Dr. M.S. Reddy (印度) 1. Mathematical strategies for determining the best location of beehives to minimize resource competition. Jomar F. Rabajante (菲律賓). 2. Initial stage risk assessment of an invasive hornet, *Vespa velutina nigrithorax buysson* (Hymenoptera: Vespidae) In Korea. Chuleui Jung (韓國). 3. Do honeybee foragers use dance information to determine the amount of fuel honey loaded at departure? Ken-Ichi Harano (日本). 4. Distribution and habitat preference of Korean mason bee (Osmia Spp). In apple orchard. Kyeong Yong Lee (韓國). 5. Rt-pcr analysis of deformed wing virus in the workers of honeybee subspecies *Apis mellifera carnica*. Mahesh Pattabhiramaiah (印度). 6. Occurrence and prevalence of eight bee viruses in *Apis mellifera* apiaries in Taiwan. Mei-Chun Lu (台灣). 7. Effect of selected chemicals on drone fertility and nosema susceptibility. Mohammed Sakhawat Hossain (孟加拉). 8. Diversity Of Free-Running Period Length And Individual Variation Among Honey Bee Races And Other Insects. Dr.

	Aykut Kence (土耳其).
13：30－16：00	永續養蜂及蜂蜜採收 I (會場 3) 主持人: Prof. Dr. Mohd Mansor Ismail (馬來西亞) 1. Sustainable beekeeping in SE ASIA. Stephen Petersen (美國). 2. Establishment of beekeeping in mangrove ecosystem, Quezon Province, Philippines. Amalia E. Almazol (菲律賓). 3. Evaluation of anti-varroa boards to increase honey production in Australian Honeybees. Marwan Keshalf (Libya). 4. Recent climate change and its effects on beekeeping industry in South Korea. Myeong-Lyeol Lee (韓國). 5. Determination of catecholamines and aminoacids from venom reservoir extract of honeybee (*Apis*) species. N. S. Surendra (印度). 6. The Architecture of Sunggau in Bangka Island, Indonesia – An Artificial Wild Honey Bee Nest. KILA NURTJAHYA (印尼). 7. Availability of sugar solutions for colony development of the bumblebee, *Bombus terrestris*. Yoon Hyung Joo (韓國).
13：30－16：00	蜂膠論壇 (會場 4) 1. Hypoglycemic effects of propolis to the streptozotocin-induced diabetic rats. Nyun-Ki Chung (韓國). 2. Antimicrobial property and cicatrization-enhancing activity of ethanol extracted Philippines Propolis. Dr. Waren Baticados (菲律賓). 3. Analysis of the Flavonoids of Propolis from Thailand and Comparing with the Propolis from Korea and China. Chen Lihong (泰國). 4. Nano propolis and drug resistant. Houshang Afrouzan (伊朗).
16：00－18：00	海報展示 (詳附件一)
10 月 1 日 (星期一)	
08：00－17：00	會議安排旅遊行程
10 月 2 日 (星期二)	

08：00－10：00	會議報到
10：30－12：30	會場 1 主持人: Dr. Nicola Bradbear (英國) 主旨發言人 9: Royal Jelly Industry and Research in Japan. Prof Mats 英國 a (日本). 主旨發言人 10: Sustainable HoneyHunting practices. Gard W. Otis (加拿大). 主旨發言人 11: Issues and Challenges of Marketing and Trade of Malaysian Natural Honey. Prof. Dr. Mohd Mansor Ismail (馬來西亞). 主旨發言人 12: Revaluation and Diversity of Medicinal Honey plants in Asia. Dr. Kunsuk WOO (韓國).
10：30－12：30	蜜蜂蜂產品 II (會場 1) 主持人: Dr. Deborah R. Smith (美國) 1. Honeybees modulate dance communication in response to nectar toxicity and demand. Prof.Tan Ken (中國). 2. Antimicrobial activity of four selected Malaysian honey on selected miro-organisms. Siti Aisyah Bt Sayadi (馬來西亞). 3. Compounds of antioxidant activity from date honey. Sun Liping (中國). 4. The study of anti-aging effect of royal jelly. Yi-Lin Chen (台灣). 5. Multipurpose strip hanger cum spacer. Prof. O.P.Chaudhary (印度).
10：30－12：30	永續養蜂及蜂蜜採收 II (會場 3) 主持人: Prof. Dr. Gard W. Otis (加拿大) 1. Meliponiculture a beekeeping alternative. Stephen petersen (美國). 2. Developing resource manual for trainers on beekeeping training for farmers through participatory approach. Dr Harish Kumar Sharma (印度). 3. Comparative sucrose sensitivity in two types of foragers within two honey bee species. Zachary Huang (美國).

	4. Beekeeping with *Apis cerana* in Ha Tinh Province, Vietnam-A success Story. Hang Thi Nguyen (越南)
13：30－16：00	蜜蜂蜂產品 III (會場 1) 主持人: Dr. Wan Iryani (馬來西亞) 1. The activity test of mycobacterium tuberculosis from bee venom (*Apis cerana indica*). Rosdiana Natzir (印尼). 2. 1,10-Decanedioic (Or Sebacic) Acid As A Dominant Component of Lipids in Royal Jelly Determined Through Mass Spectrometry (Ms)/Ms Spectra. Xing'an Li (中國) 3. Evaluation of hypoglycemia potential in longan floral honeys using in vitro models. Assoc Prof Dr Wichittra Daengprok (泰國). 4. Enhancing antimicrobial activity of mastoparan-b by amino acid substitutions. Wu-Chun Tu (台灣). 5. Total phenolic and total flavonoid content of selected honeys from Sabah. Philip Yap (馬來西亞). 6. The biochemical effects of honey HMF: as a model rat study. Sibel Silici (土耳其)
13：30－16：00	永續養蜂及蜂蜜採收 III (會場 3) 主持人: Dr. Analinda C. Manila-Fajardo (菲律賓). 1. Beekeeping, Honey production and Honey trade in India. Dr. V. Sivaram (印度). 2. The Bee Rd&E program of the department of agriculture in the 菲律賓 s. Evelyn Juanillo (菲律賓). 3. Beekeeping project evaluation methods: a recent example from Vietnam. Frances Dietrich-O'connor (加拿大). 4. Economic importance of pine honeydew honey production in 土耳其 and efforts on protection habitat of Marchalina Hellenica. Gulten (土耳其). 5. Quantification of embryonic development of honey bees (*Apis mellifera* L.) At different temperatures. Ms. Angelique A. Mangubat (菲律賓). 6. Online visualization of bee disease spread in the Philippines

	using google maps. Arian J. Jacildo (菲律賓).
16：30－17：30	論壇: Impact of Climate Change on Bees, Bee Plants and Beekeeping Industry. (會場 1)
17：00－18：30	閉幕式 (會場 1)
10 月 3 日 (星期三)	由登嘉樓 Kenangan Hotel 出發，經馬來西亞吉隆坡機場轉國外線班機抵達桃園機場。

參、主要過程及重点

一、 馬來西亞簡介

馬來西亞位居東南亞馬來半島與婆羅洲北部，之間有南海相隔著，俗稱東馬來西亞及西馬來西亞，是一個由十三州和三個聯邦直轄區組成的聯邦制國家，面積有 329,845 平方公里。人口組成為馬來人、華人、印度人等，人口超過 2,800 萬。近幾年經濟實力起飛，國民平均所得已達 14,900 元美金。馬來西亞包括許多島嶼，靠近赤道，氣候潮濕炎熱，9-10 月研討會期間是雨季，吉隆坡是馬來西亞的首都與最大城市。宗教信仰以伊斯蘭教 (64%) 為國家宗教，其他宗教有佛教、基督教、印度教等。本地人官方語言為馬來語，但一般大學以上程度的當地人均能以英文溝通無礙。馬來西亞華人多講來自中國南方各省的方言，如粵語、華語、閩南話等。馬來西亞主要生產棕梠、橡膠、錫，而稻米生產量極少，主要為泰國種進口米。登嘉樓位於西馬的東北，位於西馬的東北部，早年稱丁加奴，官方名稱為 Kuala Terengganu，目前華人人數比例僅佔 5%，主要聚集在登嘉樓華人街一帶，目前人口 101 萬人，馬來人佔 94%，印度人 1% 。當地語文以馬來語為主，華人社會可以北京話溝通，少數馬來人可以流利英文溝通。

二、 研討會

本次「亞洲養蜂大會研討會」馬來西亞登嘉樓 (Kuala Terengganu, Malaysia) 舉行，住宿及上課地點均在登嘉樓 Primula 飯店舉行。Primula 飯店位於登嘉樓郊區，面臨南中國海，研討會地點在飯店二樓三個研討室內舉行，參加的與會人員有超過 20 個國家，約二百多位人員。大會舉行期間為 2012 年 9 月 28 至 10 月 2 日，會議包含前研討會、會場展示及大會。會議前研討會分為 6 大主題，由參加人自由選擇報名參加，會場展示於 Primula 飯店側約 20 分鐘路程的展示廳展開，參加展示蜂產品或宣傳之國家有馬來西亞、土耳其、韓國、日本、伊朗、中國及台灣等二十餘個單位。研討會會議議程包含 12 個主旨發言人報告，6 個主題報告包括蜜蜂蟲害及疾病、授粉與蜜源植物、蜂針療法、蜜蜂蜂產品、蜂膠論壇、永續養蜂及蜂蜜採收共接受超過 100 篇報告人申請，以及 37 項海報展示等。參與人士可就有興趣議題參與聆聽並發言與報告人討論，會議過程中，亦有許多機會可與國內外相關領域人士建立溝通管道與互相交流機會。

三、 會議重點與建議

1. 蜜蜂蟲害及疾病：蜜蜂發生病蟲害會直接影響蜂產品生產及品質穩定，加上近年蜂群大量消失議題，蜜蜂蟲害及疾病一直是相關研究單位提出的重視主題，幾項重要病蟲害如美洲幼蟲病、蜂蟹蟎、蜜蜂微粒子病及其防治策略均為該主題重點，除西洋蜜蜂 (Apis mellifera) 外，幾種重要的亞洲蜜蜂的生物學與農藥殺蟲劑對蜜蜂的影響亦有數篇提出。
2. 授粉與蜜源植物：數篇提出利用亞洲當地地區生產的幾種蜜蜂資源多樣性，如無針蜜蜂、東洋蜜蜂 (Apis cerana)、西洋蜜蜂、熊蜂及其他野生蜂替作物授粉，說明植物授粉者的重要性。亦有提及蜜源植物種類、花粉特性等相關報導。

3. 蜂療法：重點作者提及利用蜂蜜或花粉進行醫學上的有效成分分析、療效、作用機致與微生物反應等議題，其中羅馬尼亞的主旨發言人介紹醫學上人體的循環機制與人體對蜂毒的反應，如何在醫學觀點使用正確的蜂針療法。

4. 蜜蜂蜂產品：研究重點在於蜂蜜、蜂王漿、蜂毒的利用、保存、成分分析、農藥殘留等檢測技術。其中德國的主旨發言人介紹利用儀器檢測蜂蜜成分的優劣，日本的主旨發言人介紹日本蜂王漿的生產及其制定的國家標準規範。

5. 蜂膠論壇：主要討論蜂膠的抗生作用及機制，重點研究國家集中在韓國、台灣及日本，其中韓國的主旨發言人介紹蜂世界各國蜂膠研究概況，多種抗生作用及醫學上的療效及有效成分。

6. 永續養蜂及蜂蜜採收：主要討論重點有氣候變遷對養蜂的影響、東南亞地區施行永續養蜂的可行性、殺蟲藥劑對蜜蜂的影響、養蜂生產管理及政策制訂面等議題，其中英國的主旨發言人分析養蜂業發展的成功因子。

肆、心得與建議

一、 近年來馬來西亞經濟實力實已不輸給台灣，尤其該國重視國際化、英文教育，藉由地利之便，並積極投入觀光業，從吉隆坡國際機場開闢廉價航空入出境櫃台到簡易通關過程，吸引國際大批旅客入境或轉機，有許多是台灣推國際化過程中值得借鏡的地方。

二、 馬來西亞大量出口棕梠油、橡膠，而稻米生產面積卻很少，稻米自給率不足是其隱憂，是少數東南亞稻米須依賴進口國家，而多數相關農業發展及現代化尚且不足，台灣可積極與該國進行先進農業科技交流，發展對等關係及增加台灣農業科技輸出契機。

三、 馬來西亞是一個以伊斯蘭教為主的國家，相對於佛教、道教為主的台灣有一些宗教上的禁忌與規範，雖然該國發展觀光對於國外人士有極大的相容性，但其實伊斯蘭法律規定甚嚴，建議往後派訪此類為主國家最好能事先了解當地習俗。而吉隆坡等大都市治安不佳，遇當地人前來搭訕、邀約的情事均需小心，凡事以安全為宜。

四、 藉由參加國際會議與發表，除增加研究能見度，並可獲得新的專業資訊，透過互相交流機會，拓展視野及人脈，可與國外相關研究人員，進行研究上的合作。而東南亞地區擁有許多自然資源，由其亞洲蜂類資源具多樣性，有研究及經濟利用價值潛力，而蜂產品開發、授粉利用仍有許多亟待建立的空間。由菲律賓所發起亞洲蜂蜜標準訂定尚在討論階段，未來可能向世界衛生組織提出，對亞洲蜂蜜生產及品質穩定有相當的幫助。

五、 台灣已申請加入亞洲養蜂協會會員國，經濟部國貿局亦已委託相關學研機構及學會積極爭取在台灣舉辦相關國際會議，若有機會舉辦該國際性會議，應有助於台灣發展外交及增進國內學術領域研發的能力。

展示序號	作者	作者國家	題目
P01.	ANDREA ALENA CO	菲律賓	Evaluation of potassium sorbate and propolis extract on the control of chalkbrood disease
P02.	CHULEUI JUNG	韓國	Modeling *Osmia cornifrons* (radoszkowski) (hymenoptera: megachilidae) emergency in the field
P03.	CHULEUI JUNG	韓國	Linking honeybee and ectoparasitic mite population model
P04.	DOHNAH GEORGE FONCHA	喀麥隆	Beekeeping conservation and the environment
P05.	YOON HYUNG JOO	韓國	Fibrin(ogen)olytic activity of a bumblebee (*Bombus hypocrita sapporoensi*) venom serine protease
P06.	YUSUKE KIHAR	日本	Non-heat stress induced water collection by honeybees
P07.	DR HARISH KUMAR SHARMA	印度	Increasing pollination efficiency of honeybees for ensuring pollination in apple orchards through pollen dispenser
P08.	FARIBA ZEYNI	伊朗	The thermal requirement of maturity and mating duration of honeybee queen in South of Iran
P09.	DR. NORA MAJTANOVA	斯洛伐尼亞	Treatment of a corneal ulcer using honeydew honey
P10.	DR. YONGSOO CHOI	韓國	Virus transmission and differential induction of antibacterial peptide genes expression of the honey bee
P11.	DR. YONGSOO CHOI	韓國	Analysis of pollen in floral honey for control of honey quality
P12.	DR. YONGSOO CHOI	韓國	Structure of Functional compound in chestnut honey
P13.	EDELWEISE P ESCALA	菲律賓	Insights on the flight activity and foraging behavior of *Trigona bifoi friese*
P14.	DR. MOHAMAD	伊朗	A survey on the identification of distinct able morphological characteristicsin iranian bees (*Apis mellifera meda*)

展示序號	作者	作者國家	題目
	BAGHER FARSHINE		
P15.	FARSHINEH ADL. M.B	伊朗	Determining phenotypic diversity of *Apis mellifera meda* in Iran by use of clustering analysis
P16.	JAFARI AHANGARI	伊朗	Effect of in Ovo feeding of natural bioactive compound from *Apis mellifera* on immune responses of broiler chickens challenged with Newcastle disease
P17.	KO, CHONG-YU	台灣	The effect of feeding Taiwan green Propolis extracts pollen cakes on the wintering bee colonies
P18.	MD RUHUL AMIN	孟加拉	Impacts of male age and size on mating success in bumblebee *Bombus terrestris*
P19.	MR. WEN-YEN WU	台灣	Olfactory associative impairment of honey bee workers through sublethal exposure of imidacloprid in the larval stage
P20.	NAJMEH SAHEBZADEH	伊朗	Conservative effects of honeybee repellents in canola field
P21.	NASER TAJABADI	伊朗	Effect of in Ovo injection of royal jelly on heterophil to lymphocyte ratio in broiler chickens challenged with newcastle disease virus
P22.	PROF. DR. GHOLAMHO SEINTAHMASBI	伊朗	Comparison of foraging initiation in high and low performance of Iranian honeybee (*Apis mellifera meda*) colonies
P23.	PROF. EN-CHENG YANG	台灣	Aberrant foraging behavior of honey bee workers caused by acute exposure to sub lethal concentrations of imidacloprid
P24.	ROMANUS NLEMCHI	奈及利亞	A study on the production of alcoholic beverage (mead) from cassava honey, in South East Nigeria
P25.	ROZAZIANA AHMAD	馬來西亞	The effects of Tualang honey administration during pregnancy on nociceptive and inflammatory responses induced by heat and formalin pain in the male rats offspring.
P26.	SH. HABIBI MOOD	伊朗	Effects of honey bee venom (HBV) on bee keepersí immunoglobolin within Mazandaran province
P27.	SOMAYEH	伊朗	Evaluation of sex alleles homozygosity and their correlation with

展示序號	作者	作者國家	題目
	TAZEHKAM		storing honey and brood population of honeybee
P28.	TIMUCIN ATAYOGLU	土耳其	Apitherapy products & quality criteria
P29.	YOON HYUNG JOO	韓國	Antibacterial activity of bombolitin of *Bombus terrestris*
P30.	YOON HYUNG JOO	韓國	Antifibrinolytic role of a bumbleee venom serine protease inhibitor
P31.	IN GYUN PARK	韓國	Effect of juvenile hormone on breaking diapause of bumblebee, *Bombus terrestris*
P32.	S. Suhana	馬來西亞	Cytotoxicity and Acute Analysis Study of Acacia honey
P33.	Ching-Hao Chiang	台灣	Compare the pollination effect of bumblebee (*Bombus eximius* Smith) and honeybee (*Apis mellifera* L) for facility cultivation strawberry in Taiwan
P34.	Muhammad Ashraf	馬來西亞	Antibacterial and Antiproliferative Properties of Two Malaysian Honeys
P35.	I-Hsin Sung	台灣	Methods for trapping the tube-nesting wasps and bees, with the study of their function in two agriculture systems in Orchard farm in Taiwan
P36.	Abusabbah M.O	阿拉伯	Diet alternatives for honey bees to improve honey bee hives activities and enhance honey production during dry season.
P37.	Shan-Hui Su	美國	Phylogeography of Dwarf Honeybees

A Study on the Honeybee and Bumblebee Pollination for Facility Tomatoes in the Subtropical Climate Area of Taiwan

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Introduction

1. Tomatoes are worldwide vegetables with high economic values, this self-pollinated crop is necessary to increase the fruiting rate by wind or insect pollination in greenhouse.
2. The bumblebee is utilized as the main pollinator for tomato in many countries in the temperate regions, and it is hard to use in the hot area. Nevertheless, the rearing of native bumblebees is under developing stage in Taiwan.
3. In Taiwan, the farmers were used to utilize plant growth regulator (such as tomatotone) to ensure the tomato fruiting rate.

4. There are more than 100,000 honeybee hives rearing in Taiwan. The farmers can easily buy and release the bee hives in the facilities for pollination purpose.
5. Thus, we studied honeybee *A. mellifera* and bumblebee *Bombus eximius* as the pollinators for facility tomatoes in Taiwan. The foraging behaviors of two bees, facility conditions, pollination efficiency, and the differences of fruit quality were studied.

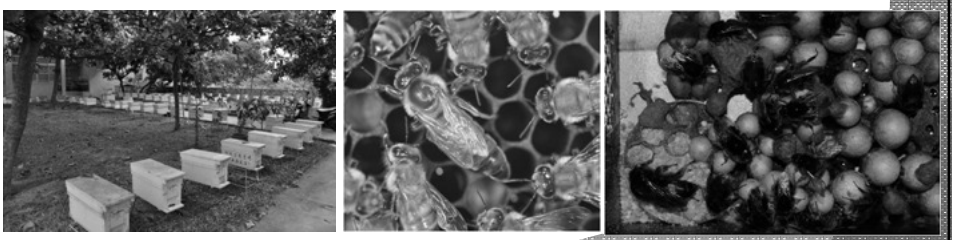


Fig. Honeybee apiary (left), *A. mellifera* (middle) and *B. eximius* (right) colonies

Materials and methods

1. Tomato varieties: large-type tomato of green shoulder (Farmers 933 and Hualien Asveg No. 18) and beefsteak.
2. The honeybee *A. mellifera* and bumblebee *B. eximius* colonies were released in the screenhouses. Activities and flower visiting behaviors were observed . The 4-CPA (tomatotone) treated flowers were also processed during the pollinating periods.

Fig. Honeybee (left) and bumblebee (right) pollination hives in tomato facilities

3. During the cool seasons of March 2010 and April 2012, the pollination trials on three tomato varieties were observed from the first layer of tomato flowering to the diminished of bumblebee activities. For example, the average temperature on a screenhouse ranged 11.9–20.7℃, with the minimum of 9.4 and maximum of 46.1℃.

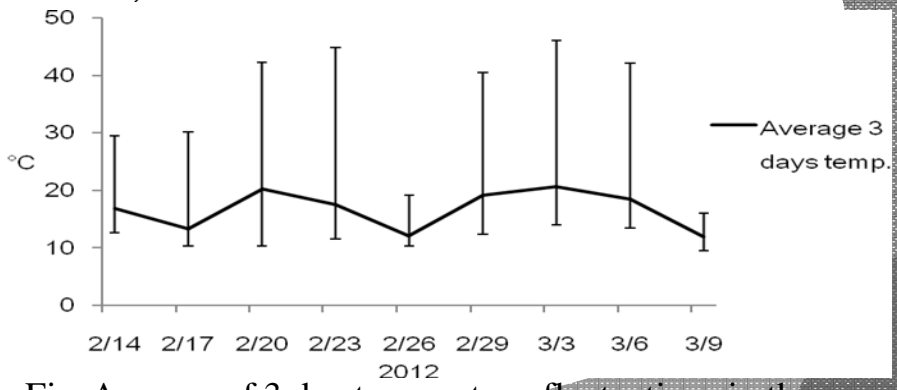


Fig. Average of 3 day temperature fluctuations in the screenhouse B from February to March 2012

Results

1. *Reactions of honeybee and bumblebee on the temperature changes in the facility*

- Depended on the colony condition and temperatures in the facility, the bumblebee foraging activities were lasted 16–34 days. These colonies endure up to 30℃ for 151 hours.

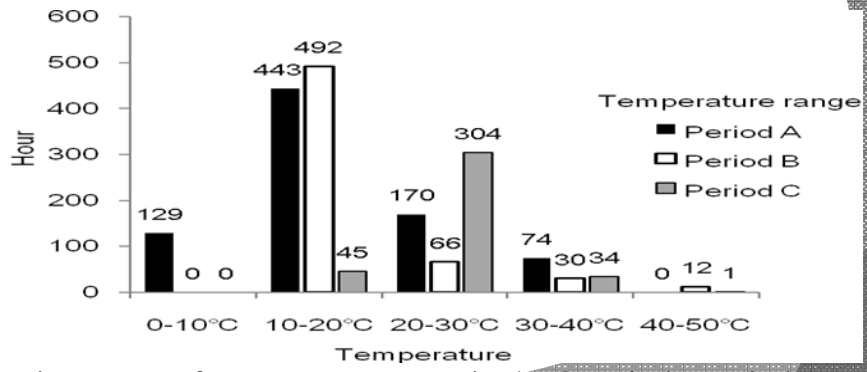


Fig. Hours of temperature range in the 3 periods; period A: 34 days, period B: 25 days, and period C: 16 days

2. *Reactions of honeybee and bumblebee on the temperature changes in the facility*

- The honeybee colonies did not breakdown in the screenhouse during the pollination periods.
- The honeybee foragers seemed not adaptative in the narrower house, and a number of foragers were frequently aggregated on the top of the screenhouse.
- A few number of honeybee foragers visited the tomato flowers.

3. *Foraging behavior on tomato flower for honeybee and bumblebee*

- Honeybees usually grasped the tomato corolla upside down by the legs for collection. The ventral side of body was often far from the corolla opening. Honeybees visited the same flower several times, but pollen aggregated on hind legs were not apparent.
- Duration for flower visiting were 47.4 ± 43.8 seconds (*n*=33).

Fig. Honeybee visiting a tomato flower

3. *Foraging behavior on tomato flower for honeybee and bumblebee*

- Bumblebees usually moved the ventral side of body near to the corolla tips. They were pressing the mandible on the side of corolla, and vibrating the wing muscles to produce sounds.
- Duration for flower visiting were 16.4 ± 13.0 seconds (*n*=42), and significantly shorter than honeybees (Mann-Whitney U-test).

Fig. Bumblebee visiting a tomato flower

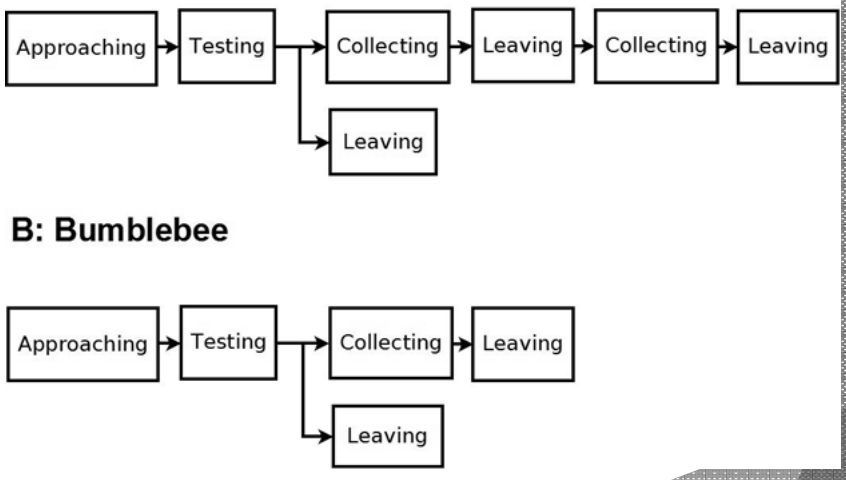


Fig. Typical schematic of honeybee (A) and bumblebee (B) foraging behaviors on tomato flowers

3. Foraging behavior on tomato flower for honeybee and bumblebee

- After honeybee left the flower, the bite scar on the corolla tips were seen.
- After bumblebee left the tomato flower, the scar on the side of corolla were seen.

Fig. Bite scars of honeybee (left) and bumblebee (right) visited flowers

4. Differences of the fruit qualities

For beefsteak tomato, the average number of flower in a layer was 5.4 (*n*= 60). The fruit rate in a layer by bumblebee pollination was 87.7%, whereas 53.1% by honeybee pollination.

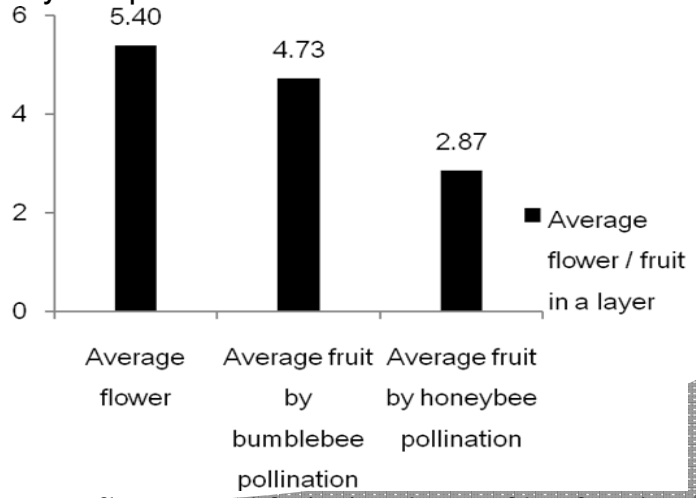


Fig. Average flowers and fruits in a layer of beefsteak tomato

4. Differences of the fruit qualities

The fruit rates were higher on bumblebee pollination (*n*= 98), artificial vibrator treatment (*n*= 43), and honeybee pollination (*n*= 56). The 4-CPA treatment was the lowest (*n*= 199).

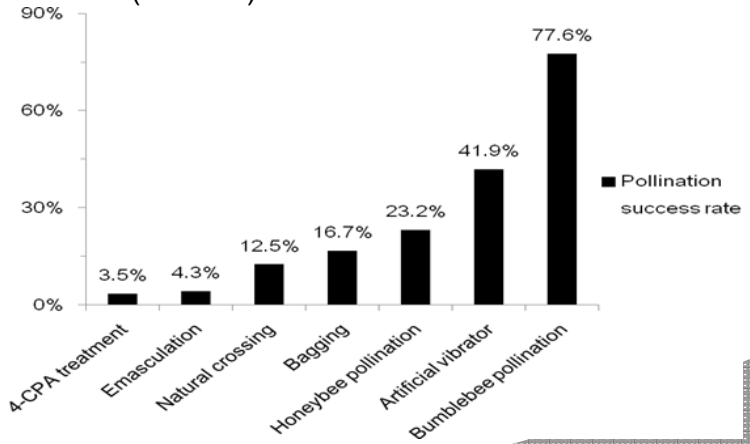


Fig. The percentage of fruit rate in 7 treatments of Hualien Asveg No. 18 tomato

4. Differences of the fruit qualities

The fruit malformation rate were lower on bumblebee pollination (*n*= 45) and honeybee pollination (*n*= 47), but higher on 4-CPA treatment (*n*= 26).

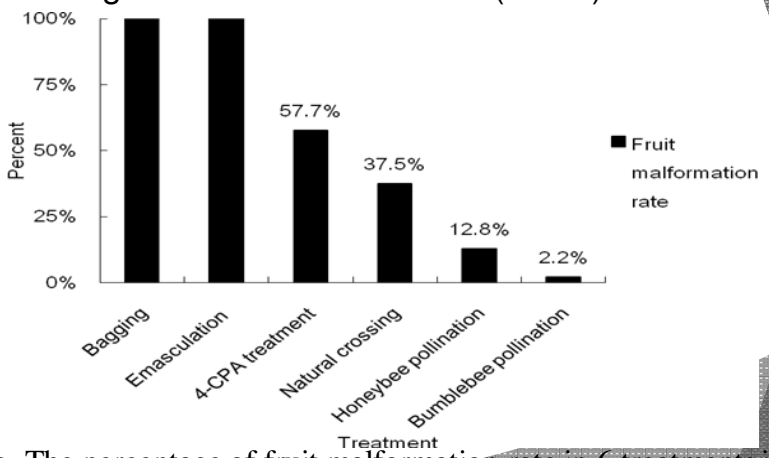
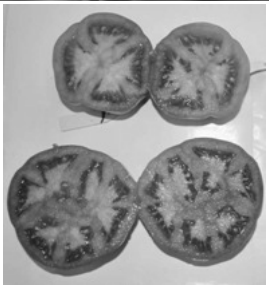
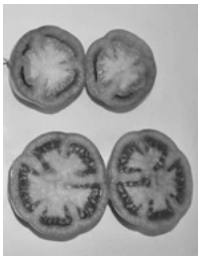
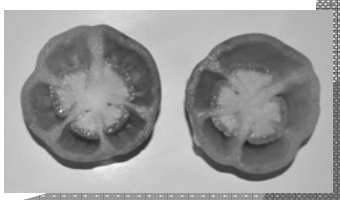


Fig. The percentage of fruit malformation rate in 6 treatments in Known-You "Farmers 933" tomato

Tomato fruits



Insect pollination fruits Malformation fruits

4. Differences of the fruit qualities

There were no difference of seed number among bumblebee and honeybee pollination, and natural crossing, but were significantly differ with honeybee pollination + 4-CPA treatment and 4-CPA treatment.

Table. The seed number, standard deviation, and the range of the "Farmers 933" tomatoes under the following treatments

			0–272

*Mean values followed by the different letters for a given variable are significantly different by Bonferroni-Holm posthoc test ($P < 0.05$)

Conclusion

1. The temperature in screenhouse changed violently, it often reaches to 40–50℃ in the noondays in hot season in Taiwan. The high temperature may affect the bee activities and cause the colony breakdown, and decrease the duration and efficiency of bee pollination.
2. The honeybee has superior thermal regulate mechanism in the nest (Heinrich, 1996), and can endure relative severe temperature changes in the facility.

3. The bumblebee provides sufficient motion of tomato flower and thus drastic increase the seed number and decrease the fruit malformation rate. It is better to release in cool autumn and winter seasons in Taiwan.
4. Due to lack of business scale of bumblebee production at present, the honeybee pollination is suggested to use in the low-residue or organic purpose of facility tomato production. The traditional treatment seems more reliable for most farmers in Taiwan.

The end

Thank you for your attention!

Methods for Trapping the Tube-nesting Wasps and Bees, with the Study of their Function in Two Agricultural Systems in Orchard Farm in Taiwan

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Introduction

Many predatory wasps and solitary bees are beneficial insects for the biological control and plant pollination. Trapping the tube-nesting wasps and bees have been studied in many countries (e.g., Budriene *et al* 2004, Boesi *et al* 2005, Buschini 2006, Cane *et al* 2007, Gazola and Garofalo 2009); however, there was no study carried out from Taiwan. Two nest-trapping devices, the bamboo cluster and Binderboard® were applied in the Chiayi Agricultural Experiment Station (CAES). This study was aim: 1. to know the biodiversity of tube-nesting fauna in CAES; 2. to compare the species and amounts by using the two tube-nesting devices; 3. to explore the long-term dynamics and the function of tube-nesting natural enemies and pollinators in the sustainable and conventional agro-ecosystems in CAES.

Materials and Methods

1. The experimental site is located of about 2.5 hectares in the two farming methods of sustainable and conventional areas in litchi farm of CAES (Fig. 1).
2. The nest inducers were made of a bamboo cluster (20 pipes of one end opening bamboo, length 15-25 cm, hole size 0.4-1.5 cm, and covered with a plastic board) and a Binderboard® (39 holes of log material, depth 10 cm, diameter 0.6 cm, and coverd with a stainless steel board) were applied (Fig. 2).
3. From August 2011 to July 2012, each of 10 nest inducers were released and recaptured in the two farming areas once every four weeks. Sample were collected, identified, and preserved in MDARES. Data manipulation and descriptive statistics were processed by MS Excel software.

Results

1. In total, there were 406 specimens belong to 9 species in 4 families (Table. 1, Fig. 6). In the bamboo traps, at least 8 species were recorded, whereas the Binderboard® traps were only 4 species. The *Anterhynchium flavomarginatum formosicola* was the most insect in the bamboo traps, whereas the *Anoplius* sp. was the main insect in the Binderboard® traps.
2. The hole size in bamboo for eumenine wasps were 7-14 mm, for leafcutter bee were 4-13 mm, and for spider wasps were 5-14 mm (Table 2). Nests of predatory wasp were built in the bamboo or log holes, and the brood cells were separated by the soils (Fig. 3A, B). The number of cell in a nest were 1-8 cells for eumenine and spider wasps. Moreover, the eumenine wasps prey lepidopteran larvae in Pyralidoidea.
3. The sustainable farming area traps more wasps and bees than conventional farming area, but the larvae in the traps were parasited in a different extent by parasitic flies and wasps (Fig. 4).
4. The larvae or pupae stages of eumenine and spider wasps were peak collected from August to September 2011, and then a number of prepupae were appeared since October 2011. The collection amounts were quite low or zero from December 2011 to April 2012, and the number were revived from May 2012. A number of leafcutter bees were collected since June 2012 (Fig. 5)

Conclusion

1. In CAES, the bamboo cluster and Binderboard® were able to trap nesting wasps and bees, these species were *Anoplius* sp., *Anterhynchium flavomarginatum formosicola*, *Auplopus* sp., *Megachile* sp., *M. spissula*, *M. taiwanicola*, *M. tranquilla*, *Orancistrocerus drewseni*, *Rhynchium brunneum*, and *Sceliphron madraspatanum*.
2. A wider range of species collected in the bamboo cluster than Binderboard® was considered in relation with the optional bamboo holes. The bamboo cluster provided a low cost and easy to use for trapping these target insects.
3. The eumenine and spider wasps were few in the low temperature months, which were considered the overwintering individuals were produced in the autumn season. The number of eumenine wasp and leafcutter bees were apparent dominant in the sustainable agro-ecosystem area. These indicated that the sustainable agro-ecosystem helps for the maintenance of biodiversity in natural enemies and potential pollinators.

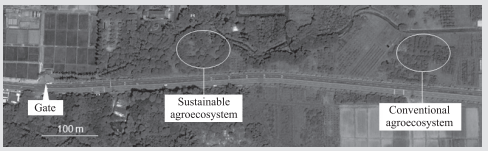


Fig. 1. Map of agricultural LTER station in CAES.

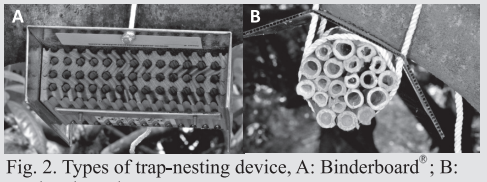


Fig. 2. Types of trap-nesting device, A: Binderboard®; B: bamboo cluster.

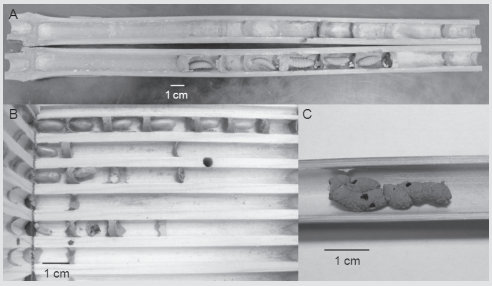


Fig. 3. Nests of three predatory wasps, A: nest cells, larvae, and prepupae of eumenine wasps in bamboo canal; B: nest cells, larvae, and cocoons of *Anoplius* sp. in Binderboard® ; C: nest cells of *Auplopus* sp. in bamboo canal.

Table 1. Species and number of collections in the trap-nesting devices.

Family / Subfamily	Species	Bamboo cluster	Binderboard®	Total
Vespidae / Eumeninae	*Anterhynchium flavomarginatum formosicola*	45	2	47
	Rhynchium brunneum	23	0	23
	Orancistrocerus drewseni	3	0	3
	unknown (dead or parasitized)	80	1	81
Megachilidae	*Megachile tranquilla*	6	0	6
	M. spissula	0	7	7
	M. sp.	5	0	5
	unknown (dead or parasitized)	6	0	6
Sphecidae	*Sceliphron madraspatanum*	1	0	1
Pompilidae	*Anoplius* sp.	39	147	186
	Auplopus sp.	35	6	41
Total		243	163	406

Table 2. Bamboo hole size and the number of nests in the trap-nesting devices for specific species.

Family / Subfamily	Species	Bamboo hole size (mm) mean ± SD (n)	No. Nest in a bamboo canal mean ± SD (n)	No. nest in a Binderboard® canal mean ± SD (n)
Vespidae / Eumeninae	*Anterhynchium flavomarginatum formosicola*	9.3 ± 1.1 (20)	2.4 ± 1.0 (19)	-
	Rhynchium brunneum	8.8 ± 1.1 (16)	1.4 ± 0.5 (17)	-
	Orancistrocerus drewseni	11.6 ± 1.3 (5)	2 ± 1 (2)	-
Megachilidae	*Megachile* sp.	11.7 ± 0.6 (3)	1 ± 0 (4)	-
Pompilidae	*Anoplius* sp.	7.1 ± 1.0 (23)	1.8 ± 0.7 (20)	1.3 ± 0.5 (104)
	Auplopus sp.	9.4 ± 2.0 (8)	3.5 ± 1.6 (11)	1.5 ± 0.5 (4)

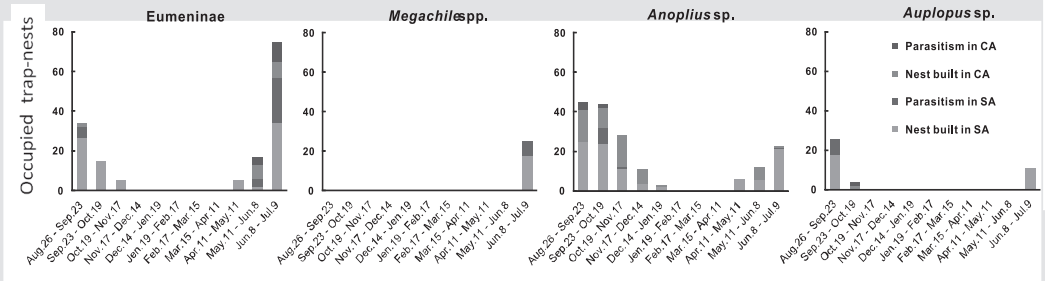


Fig. 5. Number of collections for leafcutter bees, and eumenine and spider wasps from Aug 2011 to Jul 2012.

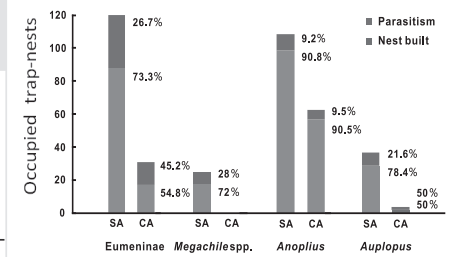


Fig. 4. Number of occupied trap-nests for leafcutter bees, and eumenine and spider wasps, with the percentage of parasitism in the sustainable and conventional agro-ecosystem areas.

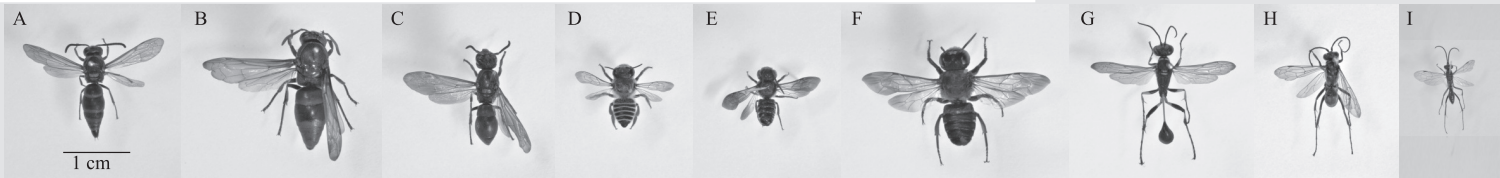


Fig. 6. Species of tube-nesting wasps and bees in CAES, A: *Anterhynchium flavomarginatum formosicola*; B: *Rhynchium brunneum*; C: *Orancistrocerus drewseni*; D: *Megachile tranquilla*; E: *M. spissula*; F: *M.* sp.; G: *Sceliphron madraspatanum*; H: *Anoplius* sp.; I: *Auplopus* sp.

11th Asian Apicultural Association (AAA) Conference
第11屆亞洲養蜂協會研討會

Organizer

The Sultan Mizan Foundation (蘇丹米贊基金會)

Malaysian Bee Research and Networked Team

(馬來西亞蜜蜂研究團體)

Terengganu State Government (登嘉樓州政府)

馬來西亞 (Malaysia)

- 馬來西亞位居東南亞馬來半島與婆羅洲北部是一個由十三州和三個聯邦直轄區組成的聯邦制國家，面積有329,845平方公里。
- 人口組成：馬來人、華人、印度人等，人口超過2,800萬。
- 經濟實力：國民平均所得14,900元(美金)。

Kuala Terengganu

- 登嘉樓、丁加奴，位於西馬的東北部。
- 人口101萬人，馬來人佔94%，華人5%，印度人1% 。
- 語文：馬來語、中文(華人)、英文。

主要生產棕梠，橡膠，稻米主要為泰國種進口米

第11屆亞洲養蜂協會研討會日程

- 會議前研討會：25th – 27th Sept 2012
- 會場展示： 28th Sept - 2nd Oct 2012
- 會議日程：29th Sept - 2nd Oct 2012

第11屆亞洲養蜂協會會議前研討會

- Workshop 1 熱帶蜂蜜特性分析 Dr. Arnie Dubeche
- Workshop 2 亞洲蜂蜜品嘗及評價 Dr Patricia Vit
- Workshop 3 蜂針療法 Dr. Stefan Stangaciu
- Workshop 4 永續性亞洲蜜蜂及無針蜂飼育訓練課程 Dr. Gard Otis
- Workshop 5 運用GPS導航採收 Melaleuca及Acasia 蜂蜜技術 Dr. Makhdzir Mardan (取消)
- Workshop 6 東南亞無針蜂鑑定及馴養展示 Dr. Deborah R. Smith

Workshop 報到會場, 登嘉樓大學

Workshop 2 Dr Patricia Vit 示範蜂蜜品嘗及鑑定蜂蜜情形

Workshop 6 講師上課情形

Workshop 6 野外實習課程情形

Honeybee species found in SE Asia

Apis dorsata

Apis florea

Apis cerana

Single comb, exposed nests

Giant Honeybees

Apis dorsata (3 sub-species)
Apis laboriosa

Dwarf or Small Honeybees

Apis andreniformis
Apis florea

Multi comb, enclosed nests

Cavity nesting bees

Apis cerana (4 sub-species)
Apis koschevnikovi
Apis nigrocincta
Apis nuluensis

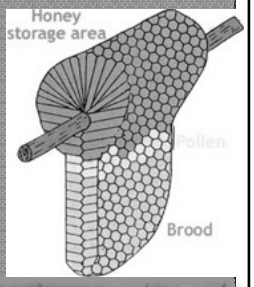
Introduced species

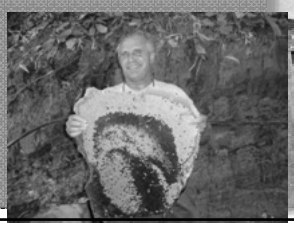
Apis mellifera

- Workshop 4
- Stephen Petersen

Which bee is the right bee?

(the one that survives your management!)





D4 會場展示及開幕儀式

登嘉樓蘇丹國王蒞臨

展場情形

蜂產品及蜂箱展示

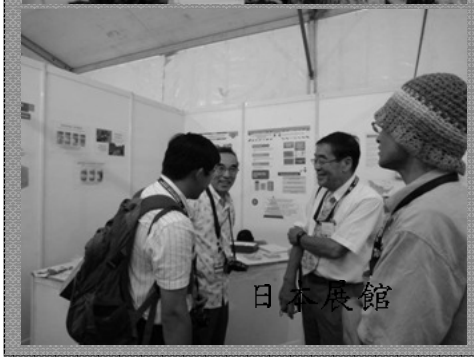
大蜜蜂蜂產品展示　　土耳其蜂產品展館


ROYAL-B
A. MANGIUM HONEY
RAJABORNEO HONEY
MADU LEBAH KELAT JAMBU LAUT
巢展示
RM 6000


加工蜜
巢蜜
MEET TAIWAN
台灣展館


中國廠商展館


當地廠商展館


日本展館


中國廠商展館

韓國展館

中國廠商展館


台灣展館

D5 研討會

- Program 會場 29th Sep.
  - Keynote 1-4
  - Bee biology pest and disease
    20 oral speakers
  - Pollination and bee plants
    14 oral speakers
  - Apitherapy
    7 oral speakers
  - AAA Annual general meeting

Oral presenters

D6 研討會

- Program 會場 30th Sep.
  - Keynote 5-8
  - Bee biology pest and disease
    7 oral speakers
  - World propolis science forum
    9 oral speakers
  - Bee by products
    6 oral speakers
  - Apitherapy
    6 oral speakers
  - Sustainable beekeeping and honey hunting
    5 oral speakers
  - Poster session

D7 Field trip

- Kuala Terengganu, Kapas Island

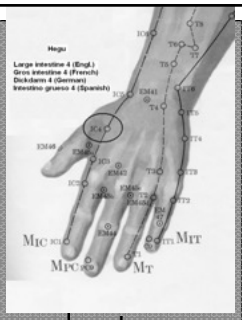
  Kapas Island is an island 6 kilometers off the coast of Terengganu, Malaysia. "Kapas" is the Malay word for cotton. It features crystal clear seawater, pristine powdery white beaches and untouched tropical jungle.

D8 研討會

- Program 會場 2nd Oct.
  - Keynote 9-12
  - Bee by products
    11 oral speakers
  - Sustainable beekeeping and honey hunting
    11 oral speakers
  - Panel forum on: impact of climate change on bees, bee plants and beekeeping industry
  - Closing ceremony

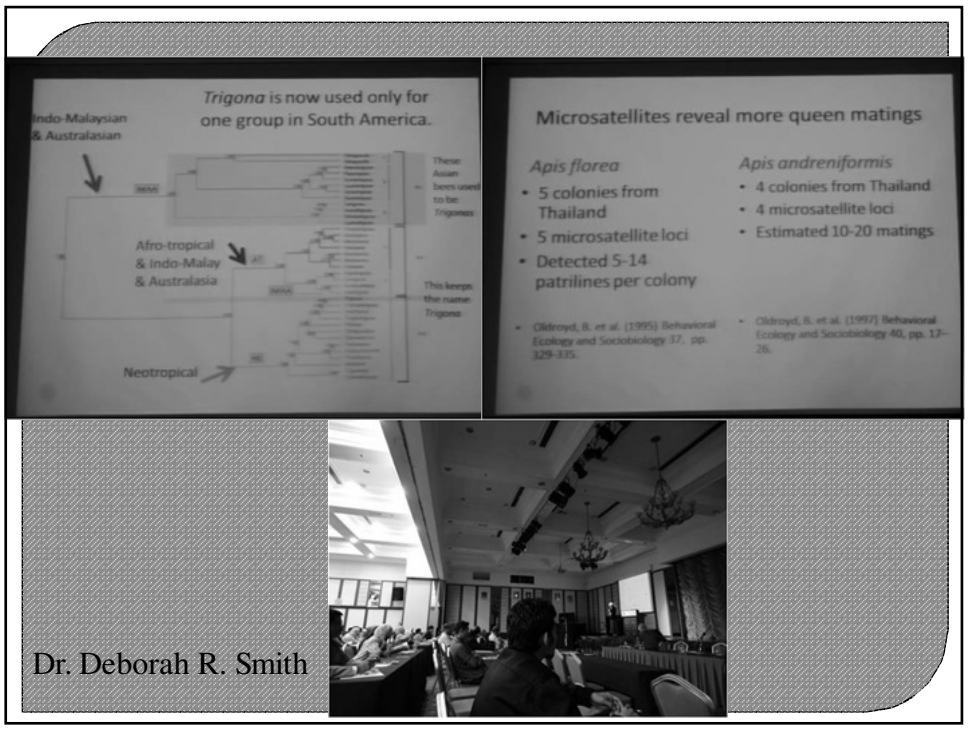
Bee stings: symptoms, adverse reactions and treatment

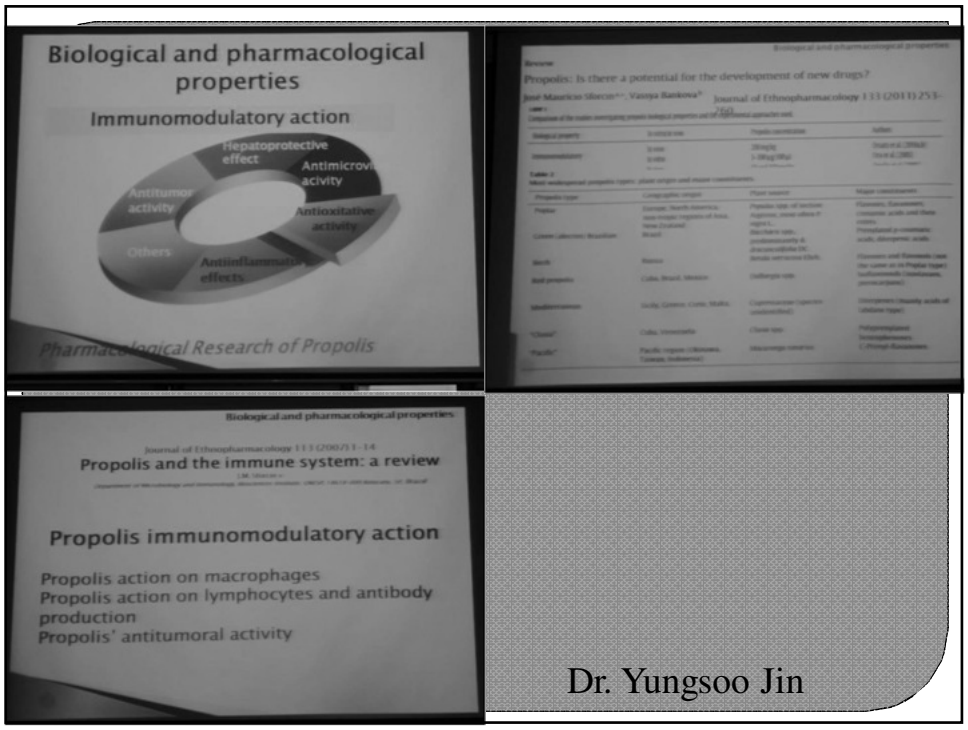
Dr. Stefan Stangaciu



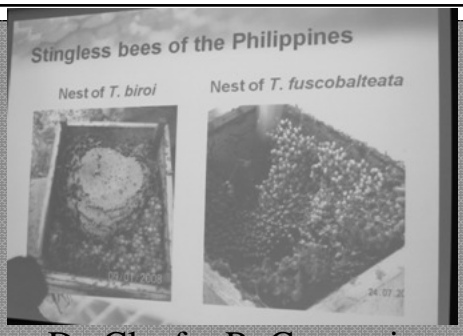
- Direct contact with the bee

- Bee venom products injections


Trigona is now used only for one group in South America.
Indo-Malaysian & Australasian
These Asian bees used to be Trigona
Afro-tropical & Indo-Malay & Australasia
This keeps the name Trigona
Neotropical
Microsatellites reveal more queen matings
Apis florea
• 5 colonies from Thailand
• 5 microsatellite loci
• Detected 5-14 patrilines per colony
Apis andreniformis
• 4 colonies from Thailand
• 4 microsatellite loci
• Estimated 10-20 matings
Dr. Deborah R. Smith

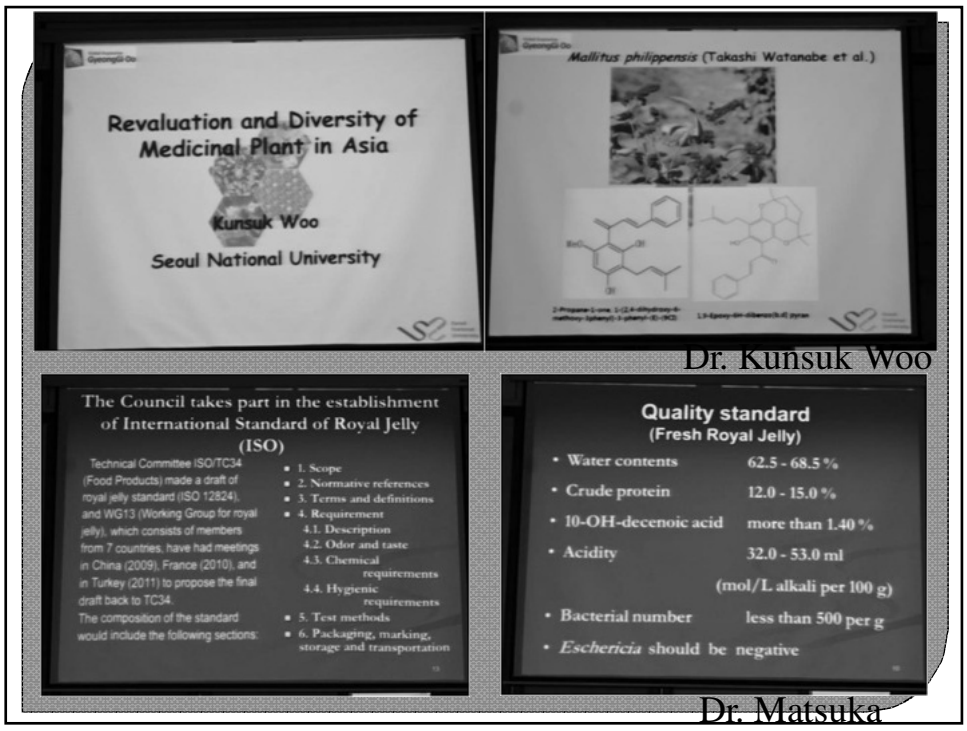

Biological and pharmacological properties
Immunomodulatory action
Hepatoprotective effect
Antimicrovi acivity
Antitumor activity
Antioxitative activity
Others
Antiinflammatory effects
Pharmacological Research of Propolis
Propolis: Is there a potential for the development of new drugs?
Biological and pharmacological properties
Propolis and the immune system: a review
Propolis immunomodulatory action
Propolis action on macrophages
Propolis action on lymphocytes and antibody production
Propolis' antitumoral activity
Dr. Yungsoo Jin

Dr. Mohd Mansor Ismail



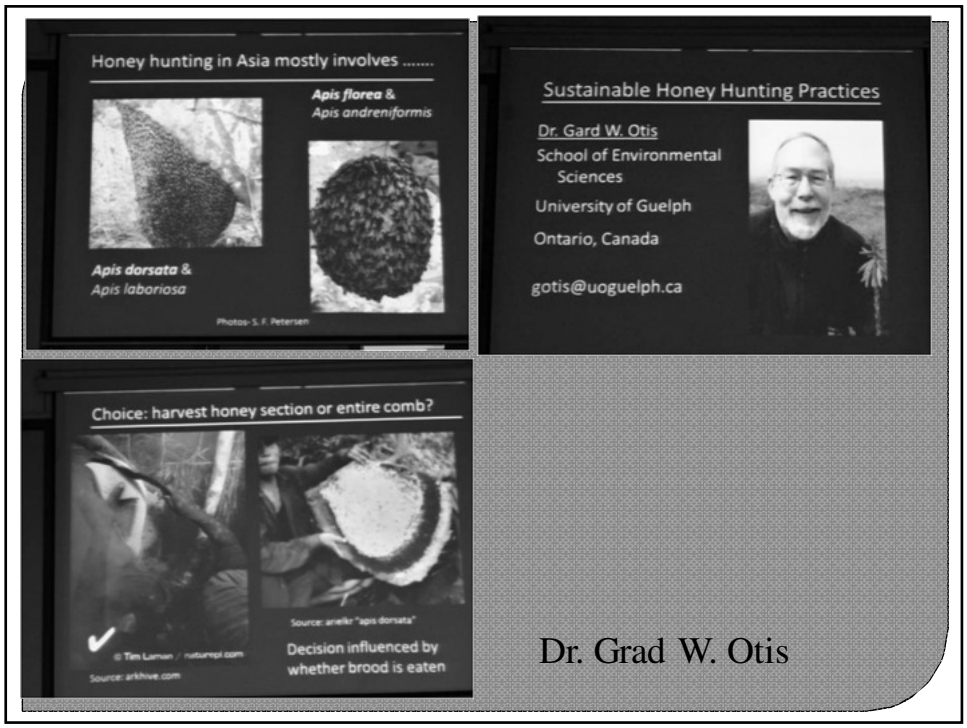
Dr. Cleofas R. Cervancia

Dr. Arne Dubeche

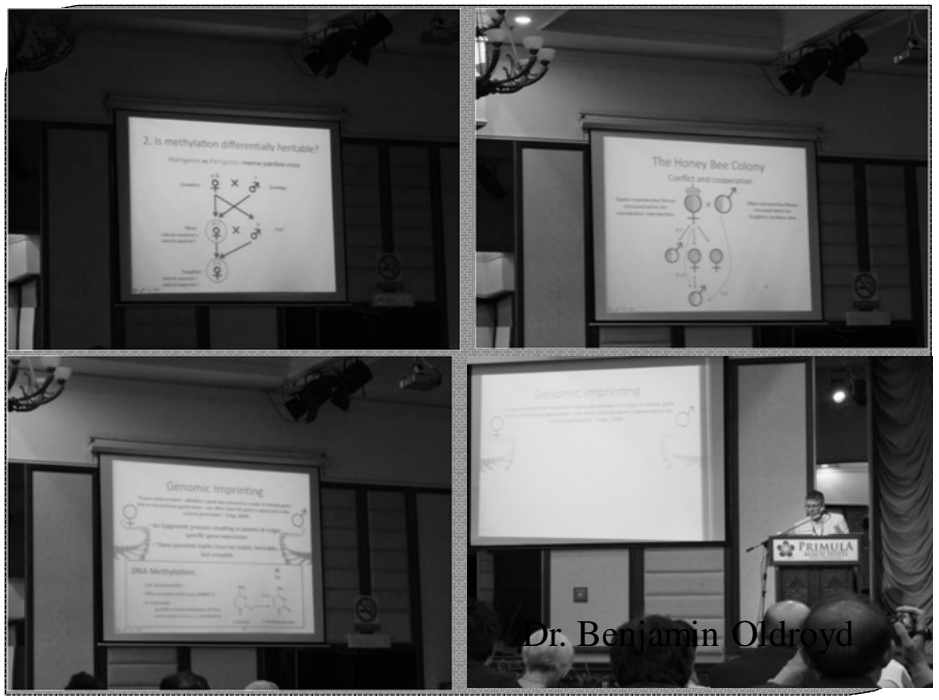


Dr. Kunsuk Woo

Dr. Matsuka



Dr. Grad W. Otis



結語 I

- 近年來馬來西亞經濟實力實已不輸給台灣，尤其該國重視國際化、英文教育，並積極投入觀光業，是有許多值得台灣借鏡的地方。
- 馬來西亞大量出口棕梠油、橡膠，而稻米生產面積卻很少，是少數東南亞稻米須依賴進口國家。
- 東南亞地區擁有許多自然資源，亞洲蜂類資源具多樣性，有研究及經濟利用價值潛力，而蜂產品開發、授粉利用及亞洲蜂蜜標準訂定仍有許多亟待建立的空間。

結語 II

- 藉由參加國際會議與發表，除增加研究能見度，並可獲得新的專業資訊，透過互相交流機會，拓展視野及人脈，可與國外相關研究人員，進行研究上的合作。
- 台灣已申請加入亞洲養蜂協會會員國，經濟部已委託相關學研機構及協會積極爭取在台灣舉辦相關國際會議，應有助於台灣發展外交及增進國內學研領域。

謝謝聆聽!!