ABSTRACT BOOK II

Posters and Abstracts

IBC 2017
XIX International Botanical Congress
Shenzhen China

XIX International Botanical Congress
Shenzhen Convention & Exhibition Center
July 23-29, 2017

Nomenclature Section
Peking University HSBC Business School
July 17-21, 2017

to the stigma of *N. attenuata*, the plant is able to select its mates from this diverse pool of pollen. For this, two questions have to be considered: 1) what floral traits are important for the different pollinators? 2) which pollinators match the plant's preferences? To answer this, we conduct natural and semi-natural experiments with transgenic lines and native accessions that show differences in floral traits. Since ethylene plays an important role in enabling the mate selection process we used transformed plants with silenced ethylene production (ACO) in comparison to empty vector control plants (EV). Pairs of EV and ACO plants were planted in a population of different native accessions that vary in floral traits important for pollinator attraction. Seeds produced after pollinator visitation will be used for genotyping. The comparison of the seed set from both transformed lines will shed light on which pollen was brought by the pollinators (ACO plant) and what pollen was selected by the plant to set seeds (EV plant). That allows us to uncouple the events of pre-pollination sexual selection (pollinator choice) and post-pollination sexual selection (mate choice of plant) to get an idea if there are pollinators that transfer exactly the pollen genotypes to the flowers that also the plant would choose based on its mate selection pattern. This will give us further insight into the ecological coadaptation between different genotypes and there best pollinators.

T3
P0754

Lichen as a biomonitor of nitrogen and sulfur depositions in petrochemical, agricultural and forested areas in Thailand

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Nitrogen oxides (NO_x) and sulfur oxides (SO_x) are mainly originated by fossil fuel combustion. These compounds are toxic to human health and ecosystems, thus amounts of them are necessary to measure in order to evaluate human and environmental impacts. These gases can be monitored by air monitoring equipment, but only a few stations could be achieved due to financial constraint especially in developing countries such as Thailand. Alternatively, lichens are widely used as biomonitors of atmospheric deposition, moreover; this technique is cost effective. Therefore, the main goal of this research was to use lichen as a biomonitor of atmospheric deposition of nitrogen (N) and sulfur (S) in petrochemical, agricultural and forested areas in Thailand. Intact thalli of the epiphytic foliose lichen *Parmotrema tinctorum* (Despr. ex Nyl.) Hale were collected from a relatively unpolluted area, and then transplanted at one forested site in the Khao Yai National Park, at two agricultural sites near Wang Chan District, Rayong Province, and at eight petrochemical industrial sites in Map Ta Phut, Rayong Province. The transplantation was lasted for 8 month (October 2013 to June 2014) and the lichen samples were periodically collected for analyzing amounts of N (as NO_3^-) and S (as SO_4^{2-}) using Ion Chromatography (IC). The result showed that mean concentrations of both N and S in the lichens in the petrochemical industrial area (304 mg/kg for N and 664 mg/kg for S) were evidently higher than those from the agricultural (193 mg/kg for N and 437 mg/kg for S) and the forested areas (159 mg/kg for N and 381 mg/kg for S). N content showed strongly positive correlation with S content ($r = 0.82$, $p < 0.01$), and both compounds trend to decrease with increasing distance from the main industrial area. This study reinforced the utilization of lichen as a biomonitor of atmospheric N and S depositions, which is appropriate for developing countries where air quality monitoring instruments are insufficient.

T3
P0755

Comparison of herbivory intensity and impacts on populations of *Trichocentrum undulatum* in southern Florida and neighboring Cuba

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With a rapidly changing climate it is important to study the role of plant-animal interactions and species' persistence within their distributional margins. The mule-ear orchid *Trichocentrum undulatum* is endemic to the Caribbean region. Southern Florida is the species distribution northern limit, with only one surviving population, in the Everglades National Park (ENP). A rare (possibly endemic) herbivorous fly, *Melanagromyza miamensis*, which is able to halt the development of the orchid's inflorescence, has incurred an alarmingly high rate of attacks in recent years. Flower development was halted by the herbivore in 94% of the new flower stalks with only 3% producing any fruit in the 2013 flowering season at a site in ENP and no fruit being produced in either 2014 or 2015. As a consequence, the population has largely not been able to reproduce for several years. The future of this species may be at risk due to its inability, or significantly reduced capacity, to produce either flowers or fruits. In this study, we wish to compare the nature and intensity of interactions between the herbivorous insect and the rare orchid in both southern Florida (the species' marginal distribution range) and Cuba (the core range). On a recent exploratory trip to the field in Cuba, populations were visited to determine the presence of this particular herbivore. Indeed, all populations showed similar signs of inflorescence stalk herbivory by the fly. We are not aware of any report prior to ours on the inflorescence herbivory of the *T. undulatum* in Cuba. Further evaluating and comparing the impacts of the insect on populations throughout the island and those in southern Florida would shed light on this complex plant-animal interaction.

T3
P0756

Species composition, stand strusture and environmental interpretation in the forest community dominated by *Pinus kwangtungensis*, a Chinese endemic

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Pinus kwangtungensis is the pines with five needles located in the montane areas. Global warming and long-term disturbance threaten its existence, and *Pinus kwangtungensis* is listed as vulnerable