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The wild Vanilla of Selangor

Akmal Raffi[1], Farah Alia Nordin[3], Siti Fatimah Md Isa[4], Muhamad Ikhwanuddin Mat Esa[2], Micheal Charles Rajaram[2] and Rusea Go[2*],

[1]Faculty of Resource Science and Technology, Universiti Malaysia Sarawak, 94300, Kota Samarahan, Sarawak.
[2]Department of Biology, Faculty of Science, Universiti Putra Malaysia, 43400, Serdang, Selangor.
[3]School of Biological Sciences, Universiti Sains Malaysia, 11800 USM, Pulau Pinang.
[4]Faculty of Tropical Forestry, Universiti Malaysia Sabah, Jalan UMS, 88400 Kota Kinabalu, Sabah

* Corresponding author: rusea@upm.edu.my

Abstract : An inventory of the genus *Vanilla* Plumier ex Mill. in Selangor is up-dated with the documentation of two additional taxa, a newly described species, *Vanilla norashikiniana* and the long-lost species, *V. montana*. To date, the state's species composition is represented by three taxa including the widespread, *V. griffithii*. The main aim of this study is to provide important notes on all species recorded in Selangor. The current checklist of *Vanilla* from Selangor was compared to other states within Peninsular Malaysia and the general distribution pattern of each species is proposed.

Key words: distribution, taxonomy, Vanilloideae, Peninsular Malaysia.

Introduction

Introducing new records in an inventory conveys two important messages, a) the resources offered by nature are beyond our anticipation and b) we must increase our efforts in unveiling the true capacity of nature as a home for various types of living organisms. For the genus *Vanilla*, its inventory in Peninsular Malaysia is enriched by the discovery of two new species to science, *V. sanguineovenosa* (Raffi et al., 2017a) and *V. norashikiniana* (Raffi et al., 2017b) and the newly recorded species of *V. havilandii* (Ong et al., 2021) and *V. yersiniana* (Ikhwanuddin et al., 2021). Among the additions, only *V. norashikiniana* is categorized as endemic to Peninsular Malaysia, second endemic species after *V. montana*. Both endemic species can be found in Selangor thus up-dating the state's *Vanilla* inventory since Go (2014). This paper, therefore, presents a current provisional checklist of *Vanilla* from Selangor in conjunction with The Royal Scientific Biodiversity Expedition Fraser's Hill Selangor State Park, Selangor. The data presented in this paper will serve as a base-line diversity study of *Vanilla* species in Selangor and Peninsular Malaysia.

Materials and Methods

The data on *Vanilla* species richness in Selangor was compiled from various sources namely Ong (2018), Raffi (2018) and Go et al. (2019). The identification of each species was based on the morphological descriptions of Soto Arenas and Cribb (2010). The general distribution for each species was verified using information provided by the Plants of the World Online (POWO) (https://powo. science.kew.org/) while their general distribution pattern in Selangor were proposed based on Rabinowitz (1981).

Results and Discussion

Species richness in Selangor

Presently, three *Vanilla* species have been successfully recorded from Selangor which is equivalent to one-third of the total number of species that can be found in Peninsular Malaysia (Figure 1). In Selangor, *V. griffithii* can be found at different types of habitats of the lowland forest. On the other hand, the two endemic species to Peninsular Malaysia, *V. montana* and *V. norashikiniana* displayed a restricted distribution of selected habitats within the state. For *V. montana*, the population found in the Main Range was the second discovery after it was long thought to be lost (Ong, 2017) and the present distribution pattern with relatively small numbers of population suggests that the species should be categorized as endangered and immediate conservation measures must be implemented to prevent the drastic depletion of this endemic species (Raffi et al., 2020). Although the wild populations of *V. norashikiniana* are not vulnerable to imminent threats, prolonged delays and negligence in implementing fundamental conservation measures would cause the species to experience the same fate as other endemic orchids, such as *Corybas*, whose extinction risk of all members native to this peninsula increased over time (Go et al., 2015).

In addition to the three listed species, Selangor is observed to potentially harbour more *Vanilla* species. This information was speculated based on a picture posted *via* social media showing a non-flowering *Vanilla* bearing large leaves that resembled the members of *V. kinabaluensis* group (Cribb, 2014) which was reportedly collected in the Batang Kali area. However, further investigations are necessary to prove the said information.

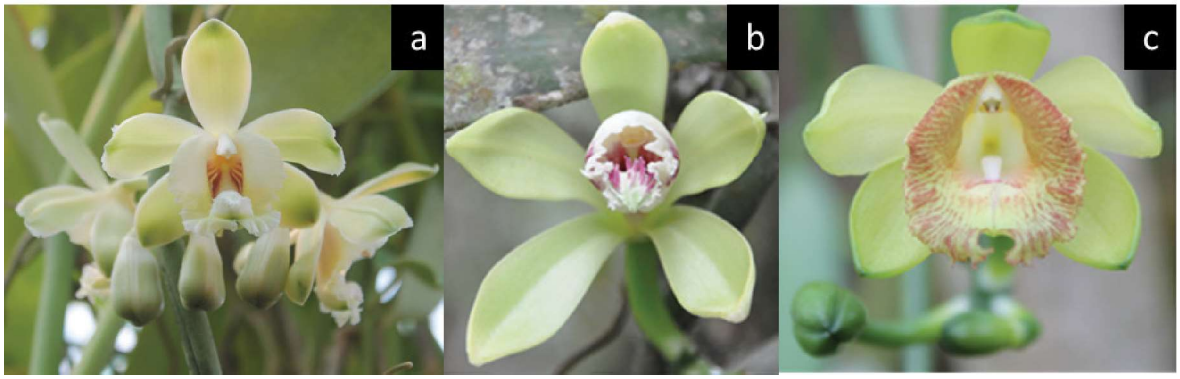

Figure 1. The wild *Vanilla* of Selangor: a) *V. griffithii*, b) *V. montana* and c) *V. norashikiniana*.

Botanical profile of *Vanilla* species in Selangor

Vanilla griffithii Rchb.f.
Diagnostic characters. Leaves ≤ 20 cm long. Lip apex deeply bilobed; lip midlobe with dense horseshoe-shaped callus at the emarginated apex.
Global distribution: Borneo, Peninsular Malaysia, Sumatera and Thailand.
Local distribution in Selangor: Previously recorded in Puchong and Hutan Lipur Bukit Kanching.
Habitat and ecology. Found in the lowland forest and on trees near the river.
Notes: This is the only species in Peninsular Malaysia with flowers that produce strong but sweet fragrance.

Vanilla montana Ridl.
Diagnostic characters. Leaves ≤ 20 cm long. Lip apex entire with single individual trichomes arranged in rows at the apex.
Global distribution: Endemic to Peninsular Malaysia.
Local distribution in Selangor: Main Range (the exact locality is undisclosed for conservation purposes)
Habitat and ecology. Found in hill forest and lower montane forest.
Notes. So far, wild populations were known to be strictly localised to the Titiwangsa Range in Peninsular Malaysia.

Vanilla norashikiniana R. Go et A. Raffi
Diagnostic character. Leaves ≤ 20 cm long. Lip apex deeply bilobed; lip midlobe with single individual hairs arranged vertically towards the intersection of apical split.
Global distribution: Endemic to Peninsular Malaysia.
Local distribution in Selangor: Hutan Simpan Semangko.
Notes. This species is named after Her Majesty Tengku Permaisuri Selangor, Tengku Permaisuri Norashikin.

Conclusion

Three *Vanilla* species currently are recorded in Selangor. However, we expect that further investigations in the state's natural forests especially in areas that are remote and not frequently visited by researchers will result in more novel documentations of *Vanilla* orchids.

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