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SHORT COMMUNICATION

## Host plants and pollinators of *Pholidota imbricata* Hook. (Orchidaceae)

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### ABSTRACT

Pollinators and host plants of *Pholidota imbricata* were studied through field surveys, and the results are presented along with the photographs. The study will be helpful in the conservation efforts of this orchid and its pollinators, along with host plants.

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The main goal of life that every living organism follows is to create offspring for the next generation. The only way by which the plants can produce the succeeding generation is by making seeds through fertilization facilitated by pollination. Pollination is simply an act of transferring pollen grains from the male anther to the female stigma. This process of pollination is assisted by several factors, like wind, air, insects, birds, bats, or other animals. Among them, insects, mainly bees, ants, and butterflies, are vitally important pollinators. Pollinators are not only important for agriculture and food production but also provide ecological, cultural, financial, health, and social values (IPBES 2016). They enhance the reproduction and genetic diversity of most of the plant species, and these plants are essential for the safe and proper functioning of the ecosystem. Therefore, these little interactions

between plants and animals are very important for the continuation of vital life processes and for maintaining biodiversity. There are several types of interactions that can be found in the environment that may be beneficial or harmful to the interacting parties. The positive interactions include mutualism, commensalism, and amensalism, whereas the negative interactions include competition, parasitism, and predation (Simms 2001). Mutualism defines the interaction between the host and a symbiont where both organisms benefit and no one is harmed. The interactions between plants and insect pollinators are an example of mutualism, which is the main driver of the diversity and genetic evolution of flowering plants (Mitchell et al. 2009). The insects also benefit from pollination with rewards like nectar for transporting pollen. As easy as it sounds, pollination is not an easy task. Not all insects are pollinators; sometimes they can be nectar thieves, which impacts the pollination process. Therefore, the mutualistic interactions are highly specialized, which makes both the plant and animal species vulnerable if either party is affected (Khalifa et al. 2021). Thus, interactions like pollination are important for the conservation of biodiversity, and they need to be documented. On the other hand, some plants grow on the trunk of specific host plants. Epiphytes like orchid species are host-specific, and for the conservation of such taxa, we need to conserve the host plants too. The interaction between orchids and pollinators is one such type of interrelationship, and the host plants of orchids are less documented. Keeping this in mind, an attempt has been made to document the pollinators and host plants of *Pholidota imbricata*.



**Figure 1:** *Pholidota imbricata* in wild

Orchids are attractive, colorful, and fragrant flowers that entice bees and wasps. Pollination in orchids is governed by their flowers' complexity and intricate ecological interactions with pollinators (Shrestha et al. 2019).



Figure 2: Flowers of *Pholidota imbricata* in wild



**Figure 3: Inflorescence of *Pholidota imbricata***

The pollinating animals visit the flowers and stop long enough to get the pollen grains on their bodies and reach the stigmas of other flowers fertilizing them. In the present study, *Pheidole* sp. of ants (family Formicidae, subfamily Myrmicinae) was observed inside the flowers of *Pholidota imbricata* (Figures 1–4). It is a flowering plant belonging to the family Orchidaceae. It is an epiphyte with numerous unimodal pseudobulbs, seated on a creeping rhizome. Leaf solitary on each pseudobulb: elliptic-lanceolate, plicate, obtuse, sometimes cuspidate, 3-many-nerved, petiolated. Raceme drooping, terminal, 10–25 cm long on a peduncle nearly as long; bracts imbricating, broadly orbicular-deltoid, truncate or obtuse, cuspidate, many-veined; apex of peduncle with several empty sheathing bracts.



**Figure 4: Pollinators of *Pholidota imbricata* in wild**

Flowers are whitish and pale yellowish. Sepals dorsal orbicular, 3-nerved, lateral cymbiform with winged keel, connate at base. Petals linear-oblong, falcate, 1-nerved; lip with 2 large rounded side lobes and a smaller 2-lobed mid-lobe. Pollinia is deeply cleft and waxy. Capsule ellipsoid (Saxena and Brahmam, 1995). It was noticed that the most common host plants belong to the Moraceae family (Table 1).

**Table 1: Host plants of *Pholidota imbricata***

Scientific name	Common name	Family
<i>Artocarpus heterophyllus</i> Lam.	Jackfruit	Moraceae
<i>Ficus benjamina</i> L.	Weeping fig	Moraceae

<i>Ficus racemosa</i> L.	Cluster fig	Moraceae
<i>Ficus virens</i> Aiton	White fig	Moraceae
<i>Mangifera indica</i> L.	Mango	Anacardiaceae
<i>Shorea robusta</i> Gaertn.	Sal tree	Dipterocarpaceae

### CONCLUSION

The present study highlights the importance of ants in the pollination of orchids like *Pholidota imbricata*. The most common host plants belong to the fig family. Therefore, the present study recommends doing more plantations of Fig species along with *Shorea robusta*.

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