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Rediscovery and Distribution update of *Robiquetia rosea* (Lindl.) Seidenf. (Orchidaceae) from the Western Ghats, India, after Five Decades

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Abstract— *Robiquetia rosea (Lindl.) Seidenf. is a rare epiphytic orchid species with scattered distribution across tropical Asia and limited confirmed records from India. Historical documentation suggests that the species had not been reported from the Western Ghats for several decades, with the last known occurrences dating to approximately 1972. The present study reports a recent field record from Kerala, India, representing the first confirmed occurrence from the region after nearly five decades. The plant was observed in the wild, conserved ex situ, and subsequently flowered under monitored conditions, allowing taxonomic confirmation. This record contributes to updated distribution knowledge and has been communicated to global botanical databases.*

Keywords— Orchidaceae, Western Ghats, epiphyte, rediscovery, distribution update, conservation.

I. INTRODUCTION

Robiquetia rosea (Lindl.) Seidenf. is an epiphytic orchid species belonging to the family Orchidaceae, tribe Vandeae, subtribe Aeridinae. The species was originally described by John Lindley as *Saccolabium roseum* and later transferred to the genus *Robiquetia* by Seidenfaden. It is distributed across tropical Asia, with scattered records from regions including the Philippines, Thailand, Vietnam, and India (Seidenfaden, 1988; POWO, 2025). In India, the species has been documented from the Western Ghats and northeastern states, though confirmed reports have remained sparse over the past several decades (Abraham & Vatsala, 1981; Joseph, 1982).

The Western Ghats, one of the world's eight most significant biodiversity hotspots, harbors exceptional orchid diversity with high levels of endemism (Myers et al., 2000). However, habitat alteration, deforestation, and changing climatic patterns have increasingly threatened epiphytic orchid populations across this region. Historical herbarium records and floristic accounts indicate that *Robiquetia rosea* had not been reliably documented from the Western Ghats for nearly five decades, with the last known occurrences dating to approximately 1972. The present study reports the rediscovery of this species from Kerala, providing updated distribution information and contributing to the conservation knowledge of this rare orchid.

II. STUDY AREA AND OBSERVATION DETAILS

The species was documented from the Krishnagiri region of Wayanad district, Kerala, India, situated within the Western Ghats, one of the world's most significant biodiversity hotspots recognized for its exceptional orchid diversity and endemism. The landscape of this region is characterized by tropical evergreen and semi-evergreen vegetation, high relative humidity, and moderate to high annual rainfall, creating favorable microclimatic conditions for epiphytic orchid growth.

Field Record Details:

- **Location:** Krishnagiri, Wayanad district, Kerala, India
- **Coordinates:** 11.623115° N, 76.183873° E

- **Elevation:** Approximately 700–900 m above mean sea level
- **Date of Initial Observation:** 15 February 2022
- **Time:** 05:19 PM (GMT +05:30)
- **Habitat:** Epiphytic growth on the trunk of a mature host tree in a moist tropical environment with partial canopy cover
- **Flowering Documentation:** 15 February 2025 (under monitored ex situ conditions)

The specimen was initially observed in its natural habitat in February 2022 during routine field exploration. Considering potential threats such as habitat disturbance and environmental stress, a conservation rescue approach was implemented, and the plant was subsequently maintained under controlled conditions in 2023 at Eunoia Orchid Garden, a private conservation facility in Wayanad, for monitoring and protection. Under managed environmental conditions that simulated its natural habitat, the plant established successfully and later produced inflorescences in February 2025, enabling detailed morphological examination and taxonomic confirmation. This sequence of field observation, conservation intervention, and flowering documentation provided reliable evidence supporting species identification and distribution reporting.

FIGURE 1: Flowering specimen of *Robiquetia rosea* documented from Krishnagiri, Wayanad district, Kerala, India (11.623115° N, 76.183873° E). Plant conserved and flowered under monitored conditions at Eunoia Orchid Garden in February 2025.

Photo credit: Dr. Sabu V. U.

III. CONSERVATION AND IDENTIFICATION

The rescued specimen was carefully maintained and monitored under controlled environmental conditions at Eunoia Orchid Garden, a private conservation facility dedicated to the preservation of native orchids of the Western Ghats. The plant was initially stabilized following collection and subsequently acclimatized to an artificial host substrate that simulated its natural epiphytic habitat. Regular observation of vegetative growth, root development, and phenological changes was conducted to ensure healthy establishment. Flowering occurred in February 2025 after successful adaptation, which enabled detailed morphological examination and taxonomic confirmation.

Identification was performed using standard orchid taxonomic keys and descriptions consistent with the nomenclature and species concepts recognized by the Royal Botanic Gardens, Kew through Plants of the World Online (POWO). Diagnostic characters observed included a monopodial epiphytic growth habit with a short stem bearing thick, leathery, distichously arranged leaves. The inflorescence was compact, arising from the leaf axil and producing multiple small, rose-pink flowers. Floral morphology showed a characteristic lip fused to the column with a short spur, a key feature consistent with the genus *Robiquetia*. Additional features such as floral orientation, texture, and coloration further supported species-level identification. These morphological characteristics correspond closely with descriptions available in authoritative orchid literature and global taxonomic references, confirming the specimen as *Robiquetia rosea*.

Diagnostic features observed include:

- Monopodial epiphytic growth habit
- Short stem bearing thick, leathery, distichously arranged leaves
- Compact inflorescence arising from leaf axils
- Multiple small, rose-pink flowers
- Lip fused to the column with a short spur (characteristic of genus *Robiquetia*)
- Floral orientation, texture, and coloration consistent with species descriptions

Robiquetia rosea can be distinguished from related species such as *Robiquetia spatulata* and *Robiquetia succisa* by its distinct rose-pink flower color, compact inflorescence, and specific lip morphology. While *R. spatulata* typically exhibits broader leaves and larger flowers, *R. succisa* shows different spur characteristics and floral arrangement (Seidenfaden, 1988; Sathish Kumar & Manilal, 1994).

These morphological characters correspond with descriptions available in global taxonomic references and regional orchid floras (Abraham & Vatsala, 1981; Joseph, 1982).

IV. DISTRIBUTION SIGNIFICANCE

Available literature, herbarium records, and regional floristic accounts indicate that *Robiquetia rosea* had not been documented from the Western Ghats for several decades, with the last known reports dating to approximately 1972 (Abraham & Vatsala, 1981; Joseph, 1982). The present observation therefore represents the first confirmed contemporary record from this biodiversity hotspot after nearly 50 years, providing strong evidence for the continued survival of the species in its historical range. This finding is particularly significant in the context of habitat alteration and declining epiphytic orchid populations across tropical forests.

The updated distribution information has been communicated to the Royal Botanic Gardens, Kew and incorporated into Plants of the World Online (POWO, 2025), thereby strengthening global Orchidaceae datasets and supporting future conservation assessments.

V. CONSERVATION IMPORTANCE

The rediscovery highlights:

1. **Continued survival** of historically recorded orchid species in the Western Ghats despite habitat pressures
2. **Importance of local conservation initiatives** in protecting rare and threatened orchid taxa
3. **Need for systematic canopy orchid surveys** across under-explored regions of the Western Ghats

4. **Potential requirement for conservation assessment** and possible IUCN Red List categorization for *Robiquetia rosea* based on updated distribution data

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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