

Floral Ecology and Apicultural Potential of Coral Vine (*Antigonon leptopus*) in Southern Tamil Nadu

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Abstract—The Coral Vine or *Antigonon leptopus* Hook. & Arn., family Polygonaceae, is a perennial, herbaceous, fast-growing climber, native to Mexico and now widely naturalised in tropical and subtropical regions of India. It is characterised by slender twining stems with tendrils, heart- to arrow-shaped leaves and showy racemes of bright pink or white flowers where the sepals are petaloid and vivid. The small actual flowers are pentamerous, with showy persistent sepals and produce pollen and nectar attractive to foraging insects. Field surveys along the Churulacode roadside, near the Perunchani reservoir in Kanyakumari District, Tamil Nadu, documented a stand of this vine established for approximately five decades, flowering almost year-round in the roadside fences. Observations revealed frequent honey-bee (*Apis* spp.) foraging, occasional humming-moth visits, and rare butterfly visits; no bird-pollinator visits were recorded. A veteran apiculturist, Mr. H. Jeyapaul, age 80, 65 years' experience, endorsed the species for bee forage due to its reliable pollen availability. The vine also thrives in disturbed and moderately polluted environments. Given its durable growth habit, continuous flowering and attractiveness to bees, *A. leptopus* is strongly recommended as a companion plant for apiculture and pollinator-support plantings in southern Tamil Nadu.

Index Terms—*Antigonon leptopus*, Coral Vine, Polygonaceae, pollen source, apiculture, honey-bee foraging, perennial flowering vine, Kanyakumari.

I. INTRODUCTION

Apiculture success depends critically on the availability of floral resources—pollen and nectar—throughout the year [1], [4]. In tropical and subtropical landscapes, perennial flowering vines can play a pivotal role in sustaining honey-bee and other pollinator populations, especially during dearth periods. The Coral Vine (*Antigonon leptopus* Hook.

& Arn.), a member of the Polygonaceae, is known for its vigorous climbing habit, high flowering rate and attractive display [9]. Native to Mexico and Central America, this vine has become naturalised in many tropical areas, including India [6]. It is also known by common names such as Queen's Wreath, Chain-of-Love and Honolulu Creeper. The species demonstrates resilience in drought-prone, nutrient-poor or disturbed soils [8], and has been cited in ornamental and roadside plantings. The role of bees in vegetable pollination, highlights the challenges affecting their efficiency and evaluates *A. leptopus* as a valuable long-term forage plant to sustain bee populations [3]. The *A. leptopus* serves as a highly beneficial forage plant for sustaining and conserving honey-bee populations [10]. *A. leptopus* thrives in disturbed wet-season habitats and provides easily accessible pollen and nectar, serving as an important forage source for pollinating insects [11]. *A. leptopus*, a Mexican climber rich in phytochemicals, is widely used as food and traditional medicine and is known for its strong antioxidant, anti-inflammatory, antidiabetic, and antimicrobial activities [7]. Recent research highlights its ecological impacts and its value as bee forage [2], [5].

Despite its wide cultivation, detailed field documentation of *A. leptopus* in the context of apiculture in southern Tamil Nadu remains limited. This study therefore aimed to: (i) provide a taxonomic description of *A. leptopus*, (ii) report field observations of its flowering, pollinator interactions and environmental adaptability in the Churulacode area of Kanyakumari District, and (iii) evaluate its potential for sustainable apiculture in the region.

II. TAXONOMIC DESCRIPTION

Antigonon leptopus Hook. & Arn., belonging to the family Polygonaceae, is a perennial, herbaceous, twining climber commonly known as Coral Vine, Queen's Wreath, Chain-of-Love, or Honolulu Creeper. The plant possesses slender, glabrous and vigorously growing stems that climb using simple, coiling tendrils. Its leaves are alternate, simple, dark green and cordate to sagittate in shape, measuring 4–8 cm in length with entire margins and acuminate tips. The inflorescences are axillary racemes or panicles bearing numerous small, bisexual flowers. Each flower is pentamerous, with five bright pink or white petaloid sepals that are persistent and showy, while true petals are absent or vestigial. The androecium consists of eight stamens with filaments connate at the base and the gynoecium features a superior, tricarpeillary ovary forming a one-locular structure. The fruit is a small, dry, three-angled achene enclosed within the persistent colourful sepals. The species flowers profusely throughout the year in tropical climates, contributing to its ecological value as a long-duration nectar and pollen source. Ecologically, the vine contributes to integrated pest management by attracting parasitoids of oil-palm pests and thrives even in poor, disturbed, or moderately polluted soils, reflecting its resilience and versatility across environmental conditions.

III. STUDY AREA

The field site is located along the highway at Churulacode, near the reservoir channel of Perunchani in Kanyakumari District, Tamil Nadu (approx. 8.2° N, 77.3° E). The micro-climate is cooler and humid than adjacent plains, owing to proximity to the water source and vegetated surroundings. The observed population of *A. leptopus* has been growing along roadside fences for nearly fifty years or more, flowering throughout the seasons.



Fig. 1. Mr. H. Jeyapaul, apiculturist in Kanyakumari District.

IV. FIELD OBSERVATIONS

During year-round monitoring of the Churulacode roadside population, *A. leptopus* maintained flowering through all seasons, providing continuous forage resources. Honey-bees (*Apis* spp.) dominated the foraging visits, particularly during early morning and late afternoon (Fig.2). Occasional humming-moth visits were noted; butterfly visits were rare, and no birds were observed visiting the flowers. The veteran local apiculturist Mr. H. Jeyapaul (age 80, 65 years apiculture experience) confirmed that the vine is a dependable pollen source for honey-bee colonies in Kanyakumari District (Fig.1). Furthermore, the species was observed thriving even in semi-urban or industrial fringe sites, indicating resilience to moderate pollution and disturbed soils.



Fig 2. a and b. *Antigonon leptopus* growing along the roadside. c. Honeybee foraging on the flowers of *A. leptopus*. d. Plant bearing pink and white flowers.

V. DISCUSSION

The perennial and continuous flowering habit of *A. leptopus* renders it highly suited to support honey-bee foraging throughout the year. Its adaptability to disturbed and polluted environments broadens its utility for roadside, urban greening and apiary-adjacent plantings. As some studies report high sugar content in nectar of ornamental vines [2], the Coral Vine may offer good forage quality. Its predominance of bee visitation (versus limited butterfly or bird visits) suggests a floral structure that favours insect (especially bee) pollinators [9]. Given its ease of propagation and low management needs, the vine may serve both ornamental and apicultural roles in southern India.

VI. CONCLUSION

The Coral Vine (*Antigonon leptopus*) is a robust, perennial vine that offers year-round flowering and reliable pollen/nectar resources, making it a viable companion plant for honey-bee colonies. Its resilience and ecological adaptability – including survival in mildly polluted or disturbed sites – add to its suitability for practical apiculture. Promotion of its cultivation near apiaries and along roadsides in southern Tamil Nadu can enhance pollinator support and sustainable honey production.

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