

A Preliminary Report on The Discovery of an Aromatic Apiaceae Plant from Chaiyaphum province, Northeast Thailand

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Abstract: The root crops herb plant had alternate and often basal leaves. The plant looks like Chinese Celery (*Apium graveolens* var. *secalinum*), but smells similar to a carrot. This perennial herb plant grows in moist habitat near streams and low temperature ranges of 25-27 °C in the area of Phupeng-Phuromthip mountain, Nong Bua Daeng District, Chaiyaphum Province, Northeast Thailand. This area was located at 16°10'15.47"N, 101°31'32"E, 120-200 m. Basal leaves blades up to 26-40 cm long. Growth in loam soil, bottomland and mesic forests, often in ravines, streambanks, shady, moist. The herb plant appeared during the rainy season of Thailand, June 2026. The morphological taxonomy of this herb plant showed the morphology closely relationship with *Angelica* and *Ligusticum* species with root crops herb. The plant emits a characteristic carrot-like aroma from both the foliage and root.

This study aims to observe and document the morphological characteristics, habitat, and taxonomic affinity of this Apiaceae plant by using morphological taxonomy, with the first record of these genera, *Angelica* and *Ligusticum* presented in the forests of Thailand.

Keywords: *Angelica*, Apiaceae, Northeast Thailand, morphological taxonomic, mesic forests, herb.

I. INTRODUCTION

The family Apiaceae plant (Umbelliferae) is a large and economically important family of flowering plants comprising approximately 450 genera and more than 3,900 species distributed worldwide. Member of the family are characterized by their aromatic tissue, hollow stems, sheathing leaf bases, and inflorescences typically arranged in compound umbels. Several species are widely cultivated as vegetables, spices, medicinal [plants, and ornamental crops, including carrot (*Daucus carota*), celery (*Apium graveolens*), coriander (*Coriandrum sativum*), and angelica (*Angelica* spp.) (Drude 1898., Kubitzki ,2004., Judd et al., 2016; Pimenov and Leonov 2004; Li et al., 2012; Wang et al., 2022., Wang et al., 2024).

In Southeast Asia, the diversity of Apiaceae remains insufficiently documented, particularly in montane and forested habitats where numerous taxa are still poorly known. Thailand harbors a variety of ecological regions that support diverse

plant community. However, records of wild Apiaceae species remain relatively limited compared with neighboring regions. Continued botanical exploration is therefore essential for improving our understanding of the taxonomy, distribution, and conservation status of this family.

During a botanical survey conducted at Phupeng-Puromthip mountain in Nong Bua Daeng District, Chaiyaphum Province, northeastern Thailand, an unusual Apiaceae population was discovered growing in moist habitats near streams. The plant exhibits several morphological characteristics typical of Apiaceae, including aromatic roots and foliage, sheathing petioles, and compound leaves. Preliminary observations suggest that this taxon may represent a poorly documented species, a new provincial record, or potentially an undescribed taxon.

The present study aims to document the morphological characteristics, habitat, and taxonomic affinity of this Apiaceae plant and provide baseline information for future systematic investigations.

II. BODY OF ARTICLE

Material and Methode

The unidentified species of Apiaceae plant, specimen sample was collected from mould soil, bottomland and mesic forests, often in ravines, streambanks, shady, moist, and low temperature (25-27 °C) area at the Phupeng-Phuromthip mountain, Nong bua daeng District, Chaiyaphum province, Northeast Thailand in the rainy season, June-August 2026 (16°10'15.47"N, 101°31'32"E, 120-200 m.).

The information of the sample was performed by macromorphology characterization with digital camera.

III. CONCLUSION

Results and Discussion

Stem: Herb, slender or thin stem and look like Chinese celery plant (Fig 1.a)

Leaf Morphology: The leaves are compound and deeply divided, appearing bipinnate or ternately compound in overall structure, covered with fine whitish hairs. Each leaf consists of several leaflets arranged in distinct clusters, typically forming three main leaflet groups. The leaflets are ovate to ovate-triangular in shape, with acute apices and conspicuously serrate margins. Leaflets are broadly ovate to rhomboid, 3-lobed, with coarsely serrate margins and acute apices. Blades to 25-40 cm long, carrot-like smell (Fig 1b-e.).

Adaxial (Upper) Leaf Surface: The leaf surface is dark green and relatively smooth, with a slightly glossy appearance. Venation is clearly visible, with the primary vein arising from the leaflet base and branching toward the margins. The leaflets are thin-textured but moderately firm, not excessively soft. Marginal teeth are evenly distributed and distinctly pronounced (Fig 1d).

Abaxial (Lower) Leaf Surface: The lower leaf surface is paler green than the upper surface and exhibits more conspicuous reticulate venation. Fine pubescence is present, particularly along the midrib, primary veins, and petiole. The underside appears matte and lighter in coloration compared with the adaxial surface (Fig 1d).

Petiole and Leaf Arrangement: The Petiole is relatively long, light green in color, and covered with fine hairs. Leaflets arise in grouped clusters that appear to diverge from a common point, giving the leaf a characteristic compound appearance (Fig 1f)..

Leaf Margin: The leaflet margins are finely and regularly serrate. The teeth are pointed but not spine-like, creating a uniform serrated edge around each leaflet.

Root: The root is dark brown, thickened, white colored inside, and carrot-like smell (Fig 2b.)

Habitat: Growth at loam soil, bottomland and mesic forests, often in ravines, streambanks, shady, moist, and low temperature (25-27 °C) area, (16°10'15.47"N, 101°31'32"E, 120-200 m.).

The plant is a perennial herb with a stout, fleshy taproot serving as a storage organ. The root is dark brown, thickened, and irregularly branched into two or three lobes. Stem and petioles are densely covered with fine whitish hairs. Leaves are alternate, long petiolate, and ternately divided. Leaflets are broadly ovate to rhomboid, 3-lobed, with coarsely serrate

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margins and acute apices. Both leaf surface, particularly the upper surface, are sparsely to densely pubescent. Venation is palmate, arising from the leaflet base. The plant emits a characteristic carrot-like aroma from both the foliage and root. It was observed growing in moist, well-drained soil near a stream in a cool, shaded habitat. Common characteristic of this herb plant was similar to both *Angelica* and *Ligusticum* species of family Apiaceae.

The morphological taxonomy of this herb plant, the combination of a flashy storage root, pubescent foliage, and carrot-like odor suggest affinity with members of the family Apiaceae, although reproductive structure is required for definitive identification.

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Conflict of interest

The authors declare that there are no conflicts of interest.

Author contributions

T. B., T. M., J. P., A. P., M. D., and S. T. designed the study. T. B. performed the main experiments. T. M. and J. P. instructed the experiments. T. B., T. M and S.T. prepared the manuscript. The detailed discussions were made among the six.

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LIST OF FIGURES:

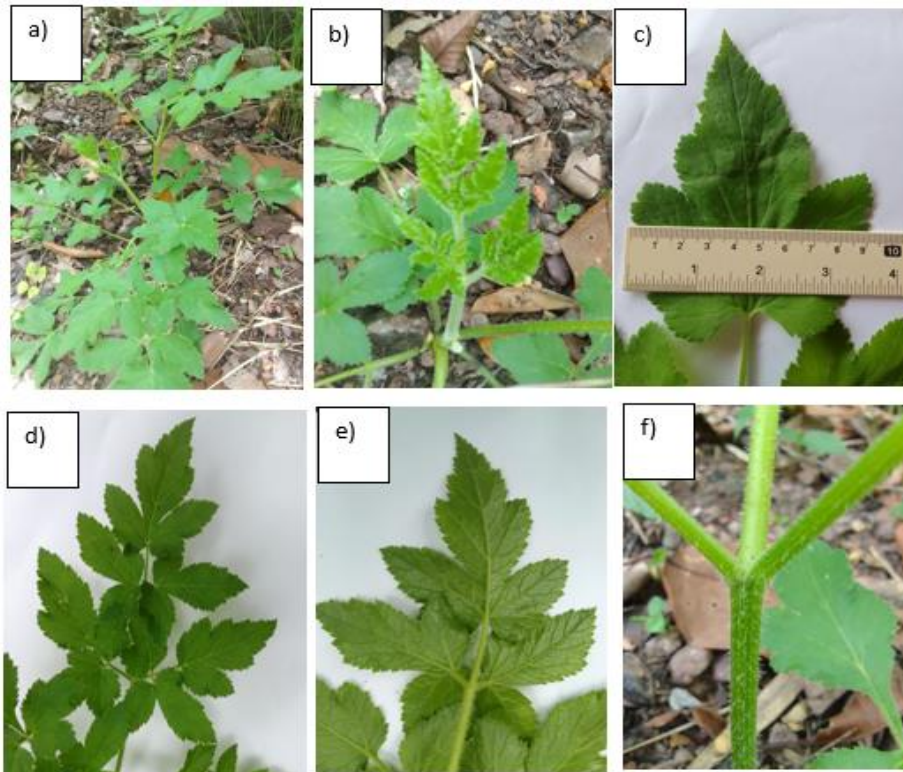


Fig 1. Characteristics of plant stems and leaves.

a) Herb plant; b) Young leaf; c) Terminal leaves size; d) Portion (1/3) of leaf, adaxial; e) Leaflet abaxial; f) Petiolule.

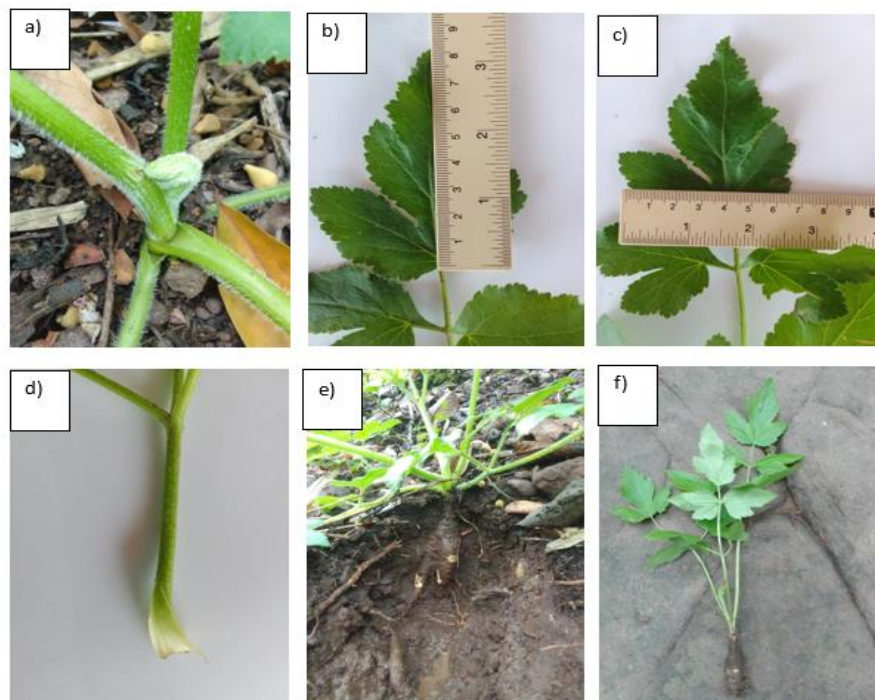


Fig 2. Characteristics of shoots, root, flower and fruit

a) Shoots; b) leaf length; c) leaf width; d) Sheath; e) Stem and Root (underground); f) Stem and Root