

Knema namkadingensis, a new species of Myristicaceae from Central Laos

KAJONESUK PHENGMA^{1,5*}, PHETLASY SOULADETH^{1,6}, DEUANTA KONGXAISAVATH^{1,7}, ANOUSONE SENGTHONG^{1,8}, KEOUDONE SOUVANNAKHOUUMANE^{3,9}, VAN-SON DANG^{4,10}, TAKENORI YAMAMOTO^{2,11} & SHUICHIRO TAGANE^{2,12}


¹Faculty of Forest Science, National University of Laos, Dongdok Campus, Xaythany District, Vientiane Capital, Laos

²Kagoshima University Museum, Kagoshima University, 1-21-30, Korimoto, Kagoshima 890-0065, Japan

³Biology Department, Faculty of Natural Sciences, National University of Laos, Dong Dok, Vientiane, Lao PDR

⁴Institute of Tropical Biology, Vietnam Academy of Science and Technology, 85 Tran Quoc Toan Street, District 3, Ho Chi Minh City, Vietnam


⁵✉ k.phengmala@nuol.edu.la;  <https://orcid.org/0009-0004-0865-8429>

⁶✉ p.souladeth@nuol.edu.la;  <https://orcid.org/0000-0001-8563-1773>

⁷✉ deuantar66789@gmail.com;  <https://orcid.org/0009-0000-4559-0647>

⁸✉ a.sengthong@nuol.edu.la;  <https://orcid.org/0009-0009-9887-9335>

⁹✉ k.souvannakhouumane@nuol.edu.la;  <https://orcid.org/0000-0003-4875-8307>

¹⁰✉ dvsonitb@gmail.com;  <https://orcid.org/0000-0001-8681-4141>

¹¹✉ t.yamamoto0624@gmail.com;  <https://orcid.org/0000-0002-5487-6652>

¹²✉ stagane29@gmail.com;  <https://orcid.org/0000-0002-1974-7329>

*Author for correspondence

Abstract

A new species of *Knema* (Myristicaceae), *K. namkadingensis* is described from the Nam Kading National Protected Area, Bolikhamxai Province in central Laos. It is found growing in dry evergreen forest. The species can be distinguished from other species of *Knema* in Laos and surrounding countries by its small habit of up to 3 m tall, small leaves shorter than 10 cm long, small male flowers measuring 2.5–3 mm in diameter, and obovoid-ellipsoid fruits with acute apices.

Key words: Indochina, inventory, limestone karst, Magnoliales, taxonomy

Introduction

The genus *Knema* Loureiro (1790: 604) belongs to the family Myristicaceae, which is a pantropical family of flowering plants comprising about 21 genera and ca. 500 species (POWO 2025, WFO 2025, de Wilde 2000). *Knema*, currently with 96 accepted species (POWO 2025), is characterized by its habit of dioecious trees with occasional stilt roots, twigs without lenticels and flaky, leaves with dense, distinct venation, and pale colour on lower surface. The inflorescences are rarely supra-axillary, forming scar-covered brachyblasts with slow, unlimited growth. The male flowers are perianth rotate, androecium with 3–25 ellipsoid anthers, and female flowers are ovary pubescent with multi-lobed stigma. The fruits are ovoid to ellipsoid, with thick pericarp, tomentose or glabrescent, and seeds are ellipsoid, ruminant albumen with fixed oil and starch (de Wilde 1997, Banik & Bora 2016).

The genus is distributed from India and Nepal to tropical regions of Southeast Asia, extending to New Guinea (POWO, 2025). In Laos, nine species of *Knema* are known: *K. conferta* (King 1897: 68) Warburg (1897: 578), *K. erratica* (Hooker & Thomson 1855: 156) Sinclair (1961: 205), *K. furfuracea* (Hooker & Thomson 1855: 159) Warburg (1897: 581), *K. globularia* (Lamarck 1788: 162) Warburg (1897: 601), *K. oblongifolia* Warburg (1897: 586), *K. petelotii* Merrill (1942: 164), *K. saxatilis* de Wilde (1979: 442), *K. tenuinervia* de Wilde (1979: 405), and *K. tonkinensis* (Warburg 1897: 581) de Wilde (1979: 381) (Newman *et al.* 2007, 2017 onwards). They are widely distributed and important components in seasonal dry evergreen forest and evergreen forest in lowlands to lower montane forest in higher elevations in the country. The bark is traditionally used for nourishing our body after we boil or soak in liquor. The oil from seeds is used for healing from skin diseases (Saising *et al.* 2022).

During our floristic inventories of the Nam Kading National Protected Area in Central Laos, we collected three taxa of *Knema*. The two of which were identified as *K. globularia* (voucher specimen: *S. Tagane et al.* Z989) and *K. tenuinervia* (voucher specimens: *S. Tagane et al.* Z257, Z1412), but the remaining one did not match any species previously known in the genus. We herein describe this taxon as a new species, *Knema namkadingensis* Phengmala, Soulad. & Tagane, and provide its photos, propose a vernacular name, and preliminary conservation assessment.

Materials and methods

To assess the novelty of the new species, we consulted the taxonomic literature (Warburg 1897, de Wilde 1979, 1998, 2000, 2002, Banik & Bora 2016), specimens in herbaria BKF, FOF, KAG, and VNM (Herbarium codes following Thiers (2024—continuously updated)), as well as digitized images on online resources (e.g. JSTOR Global Plants, <https://plants.jstor.org/>). The preliminary conservation assessment is based on the guidelines of the IUCN (2024). The measurements used in the description below are based on the dried herbarium specimens except for the floral characters which are rehydrated with water.

Taxonomy

Knema namkadingensis Phengmala, Soulad. & Tagane *sp. nov.* (Figs. 1 & 2)

TYPE:—LAOS. Bolikhamxai Province: Pak Kading District, near Ban Na Phong, Nam Kading National Protected Area, along the stream in dry evergreen forest, 18.197917°N, 104.396444°E, 231 m elev., 6 November 2023, with flowers, *P. Souladeth*, *T. Vongthavone*, *K. Souvannakhoummane*, *D. Kongxaisavath* Z662 (holotype FOF [FOF0007158!]; isotypes KAG [KAG187086!], VNM [VNM00071634!]). Figures 1 & 2.

Knema namkadingensis is characterized by its small habit 2.5–3 m tall, small leaves (blades up to 9.4 cm long with petiole up to 0.7 cm long), small male flowers 2.5–3 mm in diam. at anthesis with pedicel 2 mm long, 6–7 anthers per flower, and obovoid-ellipsoid fruits with acute apex, by which combination it is clearly distinguished from other species of *Knema* in Laos and surrounding countries.

Description:—**Treelet**, 2.5–3 m tall. Young twigs ca. 1 mm in diam., densely covered with pale brown tomentum of simple hairs to 0.1 mm long and stellate hairs ca. 0.1 mm in diam., old twigs greyish brown, glabrous. **Leaves** alternate; petioles 0.4–0.7 cm long, densely hairy when young, glabrescent; blades narrowly elliptic to lanceolate, 3.5–9.4 × 0.7–2 cm, chartaceous, adaxial surface greyish green, greenish brown, dark brown, slightly lustrous, glabrous, abaxial surface pale creamy brown, glabrous, apex acute, margin entire, recurved when dry, base cuneate, midrib prominent on both surfaces, covered with hairs when young, secondary veins 14–19 pairs, prominent on both surfaces, tertiary veins slightly visible adaxially, inconspicuous abaxially. **Male inflorescences** 7–8 mm long, 2–8-flowered, subsessile to pedunculate up to 0.7 mm long. **Male flowers** 2.5–3 mm in diam.; pedicel 2 mm long, densely covered with short simple appressed hairs and stellate hairs; bracteoles situated between the middle and apex of the pedicel, persistent, ovate-triangular, 0.9 mm long, densely covered with short simple appressed hairs, apex obtuse; perianth in bud obovoid, 2.5–3 × 2 mm, lobes 3, splitting the bud to ca. halfway; staminal disc circular, flattish, 1.3 mm in diam. (including anthers), anthers 6–7, sessile, 0.6 mm long, column tapering to base, 1 mm long, glabrous. **Female inflorescences and flowers** not seen. **Fruits** obovate-ellipsoid, 2.6 cm long, 1.1–1.3 cm in diam., covered with dense hairs 0.1 mm long, stalk 2–3 mm long, pubescent, pericarp 0.4–0.6 mm thick, incurved. **Seeds** ellipsoid, 2.1 cm long, 0.8 cm in diam.; aril lacinate to ca. half its length, red, enclosing seed or at apex slightly open.

Additional specimen examined:—LAOS. Bolikhamxai Province: Pak Kading District, near Ban Naphong, Nam Kading National Protected Area, in dry evergreen forest, 18.21978°N, 104.38402°E, 620 m elev., 18 March 2024, with fruits, *S. Tagane*, *P. Souladeth*, *V.S. Dang*, *T. Yamamoto*, *K. Souvannakhoummane*, *N. Tanaka*, *D. Kongxaisavath*, *K. Phengmala*, *A. Sengthong*, *Q.B. Nguyen*, *K. Takahashi* Z1146 (FOF [FOF0007157!]; KAG [KAG187549!], VNM [VNM00071634!]).

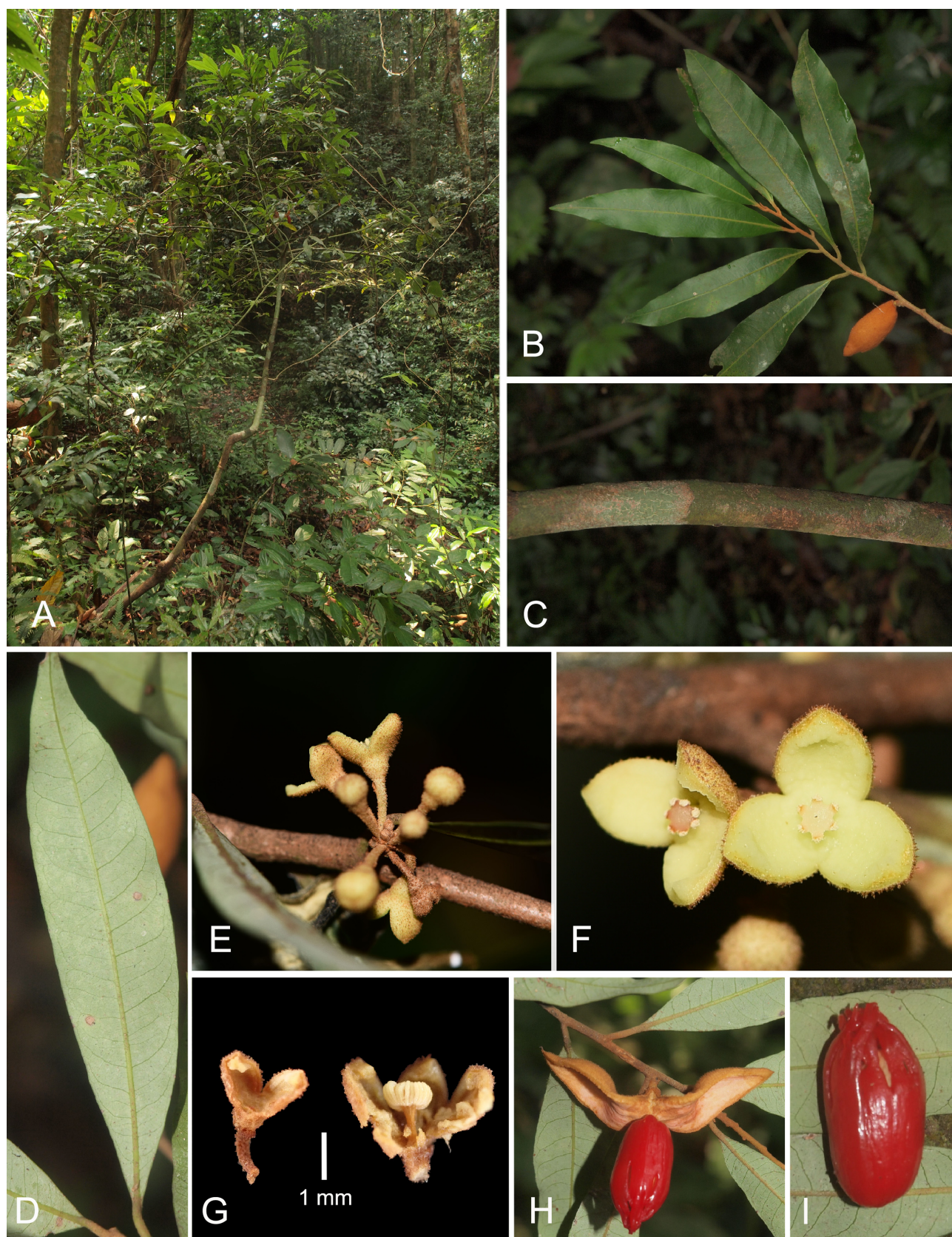


FIGURE 1. *Knema namkadingensis* Phengmala, Soulad. & Tagane, *sp. nov.*: A. Habit; B. Fruiting branch; C. Stem; D. Abaxial leaf surface; E. Male inflorescences; F. Male flowers; G. Detail of male flowers showing perianth (left) anthers (right); H. Fruit; I. Seed covered with aril. Photos A–D, G–I by S. Tagane (from Tagane *et al.* Z1146), E–F by K. Souvannakhoummane (from Souladeth *et al.* Z662).



FIGURE 2. Holotype of *Knema namkadingensis* Phengmala, Soulad. & Tagane, sp. nov. (holotype, Souldeth et al. Z662, FOF0007158).

Distribution:—LAOS (Bolikhamxai Province). Currently known only from the narrow area of the type locality and its vicinities.

Habitat and Ecology:—*Knema namkadingensis* grows in dry evergreen forest, from 230–620 m altitude. Flowering specimen was collected in November, and fruiting in March.

Etymology:—The specific epithet “*namkadingensis*” is derived from Nam Kading National Protected Area, in which the species was first discovered.

Vernacular name:—ເລືອດມ້າກັດຕິງ (Leuad Ma Nam kading), proposed here. “Leuad Ma” is the common name for the genus *Knema* species in general in Laos, “Nam kading” refers to the type locality.

Preliminary conservation assessment:—Data Deficient (DD). This new species necessitates additional observations and samplings to ascertain the presence of other populations in different locations. It is currently known only from two localities along Nam Thone (ນ້ຳທອນ) River that are about 2 km apart each other. Due to the insufficient data on its distribution and population size in the wild, we suggest categorize the species as Data Deficient (DD) based on the guidelines of the IUCN (2024). However, being categorized as DD does not imply that the species is not at risk. Additional surveys are essential, as the current information is inadequate to accurately assess its conservation status.

Notes:—Among the nine species of *Knema* previously known in the flora of Laos, *K. namkadingensis* might resemble *K. tonkinensis*. However, it can be easily distinguished by its smaller leaves at $3.5\text{--}9.4 \times 0.7\text{--}2$ cm (vs. $12\text{--}23 \times 3\text{--}5.5$ cm), shorter petiole at 0.4–0.7 cm long (vs. 0.7–1.2 cm long), fewer anthers of 6–7 (vs. 9), and thinner pericarp at 0.4–0.6 mm thick (vs. ca. 2 mm thick) (de Wilde 1979).

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