

# *Commiphora shankarsinhiana* (Burseraceae), a new species from Gujarat, India

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**Abstract:** *Commiphora shankarsinhiana* (Burseraceae), a new species is described from the Osam hills of the Rajkot district, Gujarat, India. Detailed description, comparative morphology with the allied species and photo plates are provided to facilitate the identification of the species. All the allied species are also keyed out.

**Keywords:** Burseraceae, *Commiphora*, Gujarat, India

## Introduction

*Commiphora* Jacq. is a tropical genus distributed in India, Arabia, Tropical southern Africa, and South America (Hooker, 1875; Gillett, 1980), which extends to Australia and the Pacific Islands (Good, 1974). In India, nearly six species of *Commiphora* have been recorded (Hooker, 1875; Cooke, 1903; Bhandari, 1978; Matthew, 1991), of which, five species *viz.*, *C. berryi* (Arn.) Engl., *C. caudata* (Wight & Arn.) Engl., *C. madagascariensis* Jacq., *C. stocksiana* (Engl.) Engl., *C. wightii* (Arn.) Bhandari, and variety *C. caudata* var. *pubescens* (Wight & Arn.) K. M. Matthe is accepted by POWO (2025). Two species, *viz.*, *C. wightii* and *C. stocksiana* are reported particularly from the state of Gujarat (Hooker, 1875; Cooke, 1903; Bhandari, 1978). In order to document the flora of traditional grazing routes of pastoral communities in the hilly ranges of Osam hill of Saurashtra region of Gujarat state, authors recorded a population

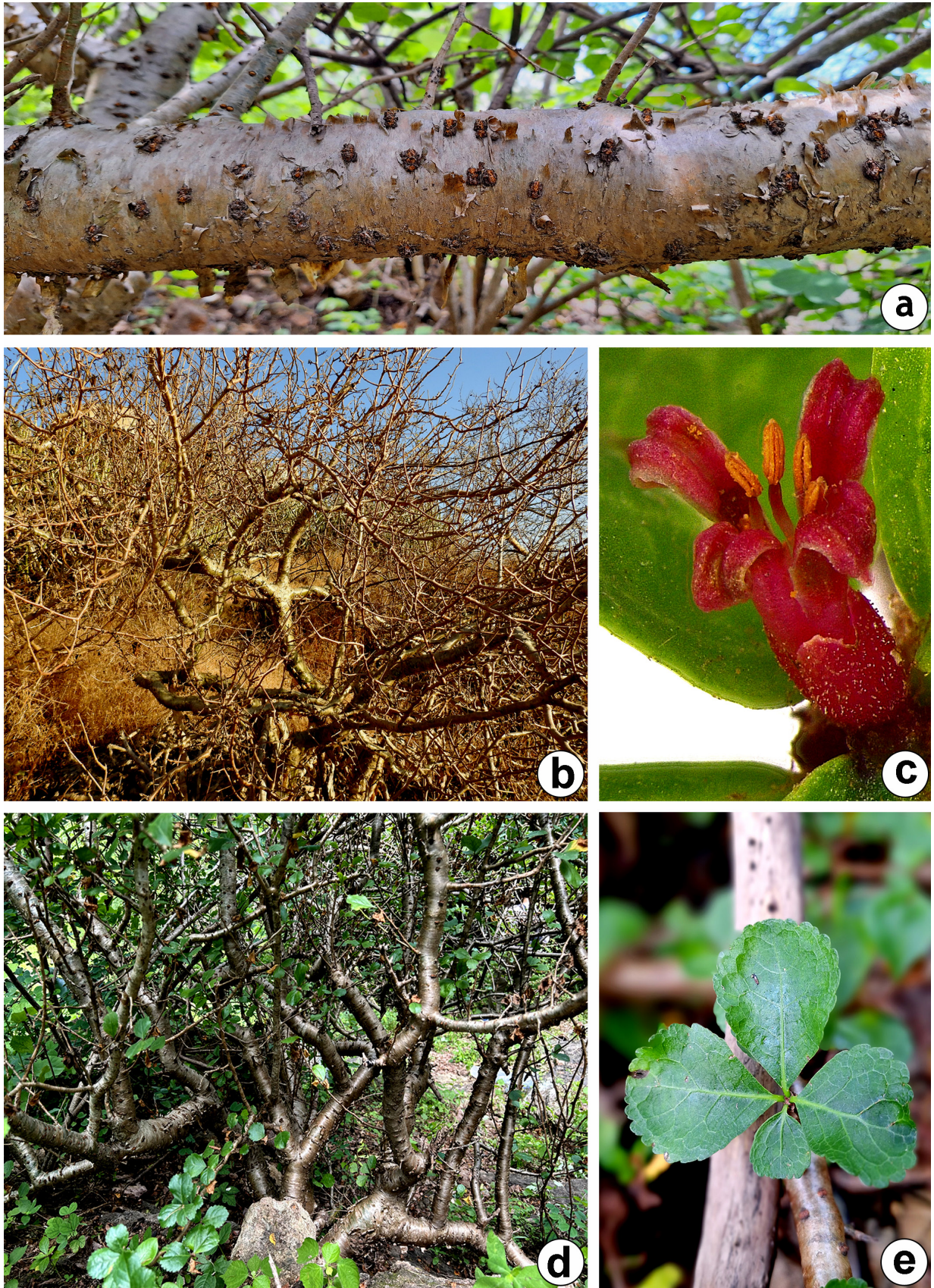
of more than 50 individuals of *Commiphora* sp. All these individuals were small dioecious trees with yellowish bark and simple leaves. However, to date, these features have not been reported for any of the Indian species (Hooker, 1875; Cooke, 1903). The majority of species show monoecious shrubby habit with whitish bark and compound leaves (Hooker, 1875; Cooke, 1903). The presence of few glandular hairs on the calyx and yellow pseudaril make this population different from the species described so far from the other parts of the world (Van Der Walt, 1973, 1975; Immelman *et al.*, 1986; Hyde *et al.*, 2022). Based on the critical study of the collected specimen and the scrutiny of the available literature on *Commiphora* (Hooker, 1875; Cooke, 1903; Van Der Walt, 1973, 1975; Immelman *et al.*, 1986; Hyde *et al.*, 2022), it is concluded that the population observed on the Osam Hills of Saurashtra is a hitherto undescribed species. The comparison of the specimens from Osam Hills with types of other *Commiphora* species available at BNRH, HBG, K, MO and SAM also confirmed the novelty. Therefore, we describe the population as a new species with detailed descriptions, photo plates and comparative morphology with the allied species.

## Taxonomic treatment

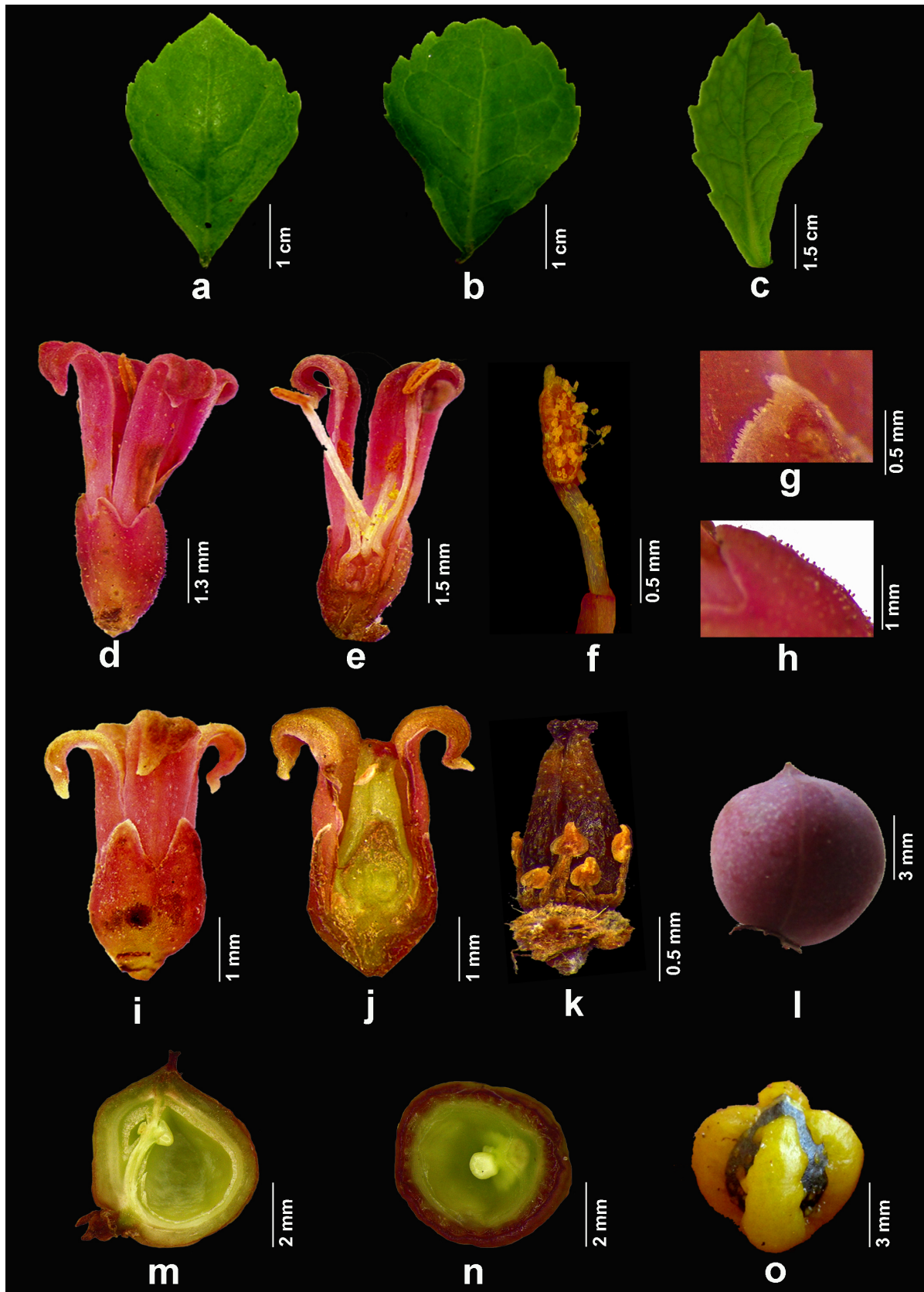
***Commiphora shankarsinhiana*** K.D.Thacker & K.S.Rajput, **sp. nov.** Figs. 1 & 2

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**Fig. 1.** *Commiphora shankarsinhiana* K.D.Thacker & K.S.Rajput: **a.** Stem with large brown-black lenticels and outer bark peeling off in dull yellow strips; **b.** Habit without leaves; **c.** sessile male flower; **d.** Habit with leaves; **e.** Leaves in clusters on short internodes (Photos K.D. Thacker & K.S. Rajput).



**Fig. 2.** *Commiphora shankarsinhiana* K.D.Thacker & K.S.Rajput: **a-c.** Leaf; **d.** Male flower; **e.** L.S. of male flower; **f.** Short stamen; **g.** Glands on calyx margin; **h.** Glandular hairs on calyx; **i.** Female flower; **j.** L.S. of female flower; **k.** Ovary and staminodes of female flower; **l.** Fruit; **m.** L.S. of unripe fruit with one developed ovule; **n.** T.S. of unripe fruit; **o.** Pseudaril with four equal arms reaching up to apex of stone (Photos K.D. Thacker & A.M Vasava).

*Commiphora shankarsinhiana* resembles *C. glandulosa* Schinz. in its tree habit, yellowish bark, simple leaves and the presence of glandular hairs on the calyx. However, it can be easily differentiated by fewer glandular hairs on the calyx (*vs.* numerous glandular hairs), axillary cyme with 1–3 flowers (*vs.* axillary clusters of 10–15 flowers), male flowers *c.* 5 mm long (*vs.* 6–8 mm long), calyx up to 2.5 mm long (*vs.* 2–5 mm long), two-lobed stigma (*vs.* four-lobed stigma) and yellow pseudaril (*vs.* red pseudaril). A detailed comparison of morphological characters is provided in Table 1.

**Type:** INDIA, **Gujarat**, Rajkot, Osam hills, on the way to Matri Mataji temple, above 214 m, 04.09.2024, KDT, AMV & KSR 012-015/2024 (holo BSJO; iso BARO).

Deciduous, dioecious, small trees, 2–3 m tall. Outer bark peeling off in dull yellow strips, with large brown-black lenticels. Exudate white, viscous, scanty, hardly scented. Branches with few, large brown lenticels, spine-tipped; spines short, 1–1.5 cm long. Leaves simple, alternate, 4–5 together from each node, internodes very short, clustered, subsessile; petiole 1–2 mm long; lamina 2–6 × 1–4 cm, obovate, base cuneate, glandular hairs present at the base, margin serrate-dentate, apex acute to obtuse. Inflorescence an axillary cyme; flowers unisexual, precocious or appearing with leaves; sessile. Male flowers 1–3, 5–6 × 1.5 mm. Sepals 4, united, 2–2.5 × 0.5 mm, campanulate, red, glandular hairs few. Petals 4, free, 3–5 × 0.5 mm, linear, red, recurved. Disc 4-lobed. Stamens 8, unequal, 4 short, 4 long; shorter stamens 2 mm long, antipetalous; longer stamens 4 mm long, alternipetalous. Ovary rudimentary. Female flowers 1–2, 4–5 × 1.5 mm. Sepals 4, united, 2–2.5 × 0.5 mm, campanulate, pale red, few glandular hairs. Petals 4, free, 3–4 × 0.5 mm, linear, red to yellowish-red, recurved. Disc 4-lobed. Stamens sterile 8, 4 short, 4 long; shorter stamens *c.* 1 mm long, antipetalous; longer stamens *c.* 1.5 mm long, alternipetalous. Ovary superior, *c.* 1.5 mm long, 2-loculed, ovoid; 1 ovule in each locule, only one ovule becomes mature in fruit; style 2 mm long; stigma 2-lobed. Fruit a drupe, 7–9 × 6–9 mm, subglobose to obovoid, slightly

flattened, asymmetrical, beaked, beak up to 1 mm long; exocarp glabrous, red-maroon in ripe fruit, mesocarp fleshy. Stone 5–7 × *c.* 4 mm, asymmetrically ovoid, with one fertile and one sterile locule, rugose, brown; pseudaril with 4 equal arms, yellow, reaching almost the apex.

**Vernacular name:** Gugal.

**Flowering & fruiting:** March to September.

**Habitat:** Osam Hill is located at Patanvav village, near Upleta (Saurashtra) and is particularly known for the perlite oars (Anonymous, 2015). This landscape is predominated by thorn-mixed dry deciduous forests. Two-thirds of the hilly terrain is covered by grasses. The soil and substratum of the hills consist of loam-mixed gravels and rocky slopes.

**Distribution:** So far known from the Osam hills, on the way to Goddess Matri Mataji temple, Rajkot district, Gujarat, India.

**Etymology:** The specific epithet '*shankarsinhiana*' is in honour of the Late Mr. Shankarsinh N. Rajput (July 1927–July 2005) who was a traditional herbal medicine practitioner of the Khandesh region of North Maharashtra. He was known for curing Diphtheria among the children of rural areas.

**Species examined:** INDIA, **Gujarat**, Rajkot district, Osam hills, 214 m, 04.09.2024, KDT & PNJ-073/2023; KDT, AMV & KSR-012-015/2024 (BARO).

### Key to allied species

1. Plants monoecious..... 2
1. Plants dioecious or polygamous..... 3
2. Leaves palmately compound (3-foliolate); stamens unequal in length; stigma 3-lobed .....*C. wightii*
2. Leaves pinnately compound (unipinnate); stamens equal in length; stigma 2-lobed .....*C. stocksiana*

3. Inflorescence an axillary cyme; stigma 2-lobed; pseudaril yellow ..... *C. shankarsinhiana*
3. Inflorescence an axillary fascicle; stigma 4-lobed; pseudaril red..... 4
4. Fascicles 10–15-flowered; sepals glandular hairy ..... *C. glandulosa*
4. Fascicle 3–7-flowered; sepals not glandular hairy ..... *C. pyracanthoides*

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**Table 1:** Comparative morphology of *Commiphora shankarsinhiana* with most allied African species and species found in Gujarat.

Character	<i>C. shankarsinhiana</i> sp. nov.	<i>C. wightii</i> (Arn.) Bhandari	<i>C. stocksiana</i> (Engl.) Engl.	<i>C. glandulosa</i> Schinz	<i>C. pyracanthoides</i> Engl.
Habit	Dioecious, small tree, up to 3 m tall, bark yellowish	Monoecious, shrub, up to 4 m tall, bark whitish	Monoecious, shrub, up to 4 m tall, bark greenish	Dioecious or polygamous, tree, up to 8 m tall, bark yellowish	Dioecious or polygamous, many stemmed shrubs, up to 3 m, bark yellow-green
Leaves	Simple	Compound, 3-foliolate	Compound, unipinnate, pinnae 2–3 pairs	Simple or 3-foliolate	Simple or 3-foliolate
Inflorescence	Axillary cymes, 1–3-flowered	Axillary fascicle, of 2–3-flowered	Axillary fascicle, 1–3-flowered	Axillary fascicle, 10–15-flowered	Axillary fascicle, 3–7-flowered
Flowers	Sessile, dioecious, calyx with few glandular hairs, petals reflexed, disc 4-lobed	Subsessile, hermaphrodite, calyx with numerous glandular hairs, petals reflexed, disc 8-lobed	Subsessile, hermaphrodite, calyx pubescent, petals not reflexed, disc 8-lobed	Subsessile, dioecious, calyx with numerous glandular hairs, petals reflexed, disc 4-lobed	Subsessile, dioecious, calyx glabrous, petals reflexed, disc 4-lobed
Stamens	8, unequal, 4 short, 4 long	8 (–10), unequal, 4 short, 4 long	8, equal in length	8, unequal, 4 short, 4 long	8, unequal, 4 short, 4 long
Stigma	2-lobed	3-lobed	2-lobed	4-lobed	4-lobed
Pseudaril	Yellow	Yellow	Yellow	Red	Red

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