

## NOTES ON *VERBASCUM* L., FROM SAUDI ARABIA WITH DESCRIPTION OF EIGHT NEW SPECIES

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### Abstract

Eight new species of *Verbascum* L., from Saudi Arabia viz., *Verbascum abyadicum* F.M. Al-Hemaid, *V. asiricum* F.M. Al-Hemaid, *V. chaudharyanum* F.M. Al-Hemaid, *V. hema-figranum* F.M. Al-Hemaid, *V. medinecum* F.M. Al-Hemaid, *V. sheilae* F.M. Al-Hemaid, *V. shiqrivicum* F.M. Al-Hemaid and *V. tabukum* F.M. Al-Hemaid are described along with their relationship, habitats and key to the eight new species.

### Introduction

The genus *Verbascum* L., belongs to the family Scrophulariaceae. It comprises of about 350 species widely distributed all over the world but the main center of its distribution is Mediterranean and Irano-Turanian regions. In Saudi Arabia it is represented by 18 species. The first report from Saudi Arabia was *Verbascum schimperianum* Boiss. Deflers (1887) described two new species viz. *Verbascum yemense* Defl., and *Celsia bottae* Defl., the latter now called *Verbascum bottae* (Defl.) Huber-Morath. Blatter (1914) reported two species from Aden followed by seven species, one of them under *Celsia* (Blatter, 1919). Murbeck (1925) in his monograph described three new species viz., *Celsia akdarensis* from Oman, *C. deserticola* from Medain north of Arabia and *C. melhanensis* from Yemen. These have since been transferred to *Verbascum* by Huber-Morath (1996) who reported four taxa of *Verbascum* from Arabia. Migahid (1996) reported four species from Saudi Arabia, Collenette (1985) reported ten taxa from Saudi Arabia (including two unnamed taxa), Wood (1997) reported four species from Yemen, Collenette (1998, 1999) reported 18 species from Saudi Arabia including eight unnamed taxa. The present study is based on a large number of fresh samples and herbarium specimens covering the whole of Saudi Arabia and neighbouring countries. The author has examined this material during his visits in 1999 to the Herbaria, Royal Botanic Gardens, Kew and Royal Botanic Garden, Edinburgh. The necessity for the descriptions of these new taxa was realized during the write-up of the genus *Verbascum* for the Flora of the Kingdom of Saudi Arabia. As a result of the present study, a total of 18 species of *Verbascum* including the 8 new species are now reported from Saudi Arabia. The paper presents the Latin diagnosis of the new species and the necessary discussions concerning their relationships with other taxa.

### Key to the Species

- |   |                            |
|---|----------------------------|
| 1. Flowers with five stamens                              | 2                          |
| + Flowers with four stamens                               | 3                          |
| 2. Leaves ovate, 8-10 x 5-7 cm; petioles 2-3 cm long.     | 3. <i>V. chaudharyanum</i> |
| + Leaves lanceolate, 20-30 x 7-9 cm; petioles 3-6 cm long | 7. <i>V. shiqrivicum</i>   |

- |   |                            |   |
|---|----------------------------|---|
| 3. Plants glabrous  | 2. <i>V. asiricum</i>      | 4 |
| + Plants with simple or stellate hairs                                      |                            |   |
| 4. Plants with simple hairs   | 6. <i>V. sheilae</i>       | 5 |
| + Plants with stellate hairs  |                            |   |
| 5. Leaves large, 20-45 cm long  | 4. <i>V. hema-figranum</i> | 6 |
| + Leaves small, 3-15 cm long  |                            |   |
| 6. Leaves ovate, very small, 3-5 x 2-4 cm                                   | 8. <i>V. tabukum</i>       | 7 |
| + Leaves lanceolate, larger, 10-15 x 4-7 cm                                 |                            |   |
| 7. Inflorescence 50-60 cm long. Bracts 4-5 mm long.<br>Capsule 3-4 mm long  | 1. <i>V. abyadicum</i>     |   |
| + Inflorescence 15-25 cm long. Bracts 15-25 mm long.<br>Capsule 5-7 mm long | 5. <i>V. medicum</i>       |   |

1. *Verbascum abyadicum* F.M. Al-Hemaid *sp. nov.*, Affinis *V. hema-figranum* F.M. Al-Hemaid sed differt in bracteae 4-5 mm longue, floribus solitariis, calyce 3-4 mm longus, florigium per aestas. Typus: Saudi Arabia, near Jabal Abyad, *I.S. Collenette*, 3757, (holotypus E)

This species was found 125 km north of Madinah, where it grows in crevices of the black lava flow in Harrat Khaybar (elevation 1650 m above sea level).

A stout, erect, biennial herb up to c. 60 cm tall. Indumentum of dense, stellate hairs. Leaves basally rosetted, petiole 2-3 cm long; lamina ovate-lanceolate, 11-13 x 5-6 cm, densely white-tomentose, felty-thick. Racemes up to c. 50 cm long. Flowers yellow, singly arranged; pedicels short, 2-3 mm long. Bracts small, linear, 4-5 mm long. Calyx 3-4 mm long. Corolla c. 2.2 cm across. Stamens 4, filaments white-hairy. Capsule elliptic-ovoid, 3 x 4 mm (Fig. 1).

Flowering: June - August

Distribution: Endemic. Known only from the type locality.

*V. abyadicum* is distinguished from *V. hema-figranum* by its smaller, 4-5 mm long bracts, flowers singly arranged, calyx 3-4 mm long and flowering in summer. *V. hema-figranum* has two, 15-20 mm long, opposite bracts, flowers clustered, calyx 8-12 mm long and the plants spring-flowering.

Note: This species is being named after the place from where it was collected.

2. *Verbascum asiricum* F.M. Al-Hemaid *sp. nov.*, Affinis *V. yemense* Defl. sed differt in pedicelli 15-25 mm longi, floribus solitariis vel 2-3 floribus et floribus 1.2 -1.4 cm diam. Typus: Saudi Arabia, S.E. of Abha, *I.S. Collenette* 2091 (holotypus K).

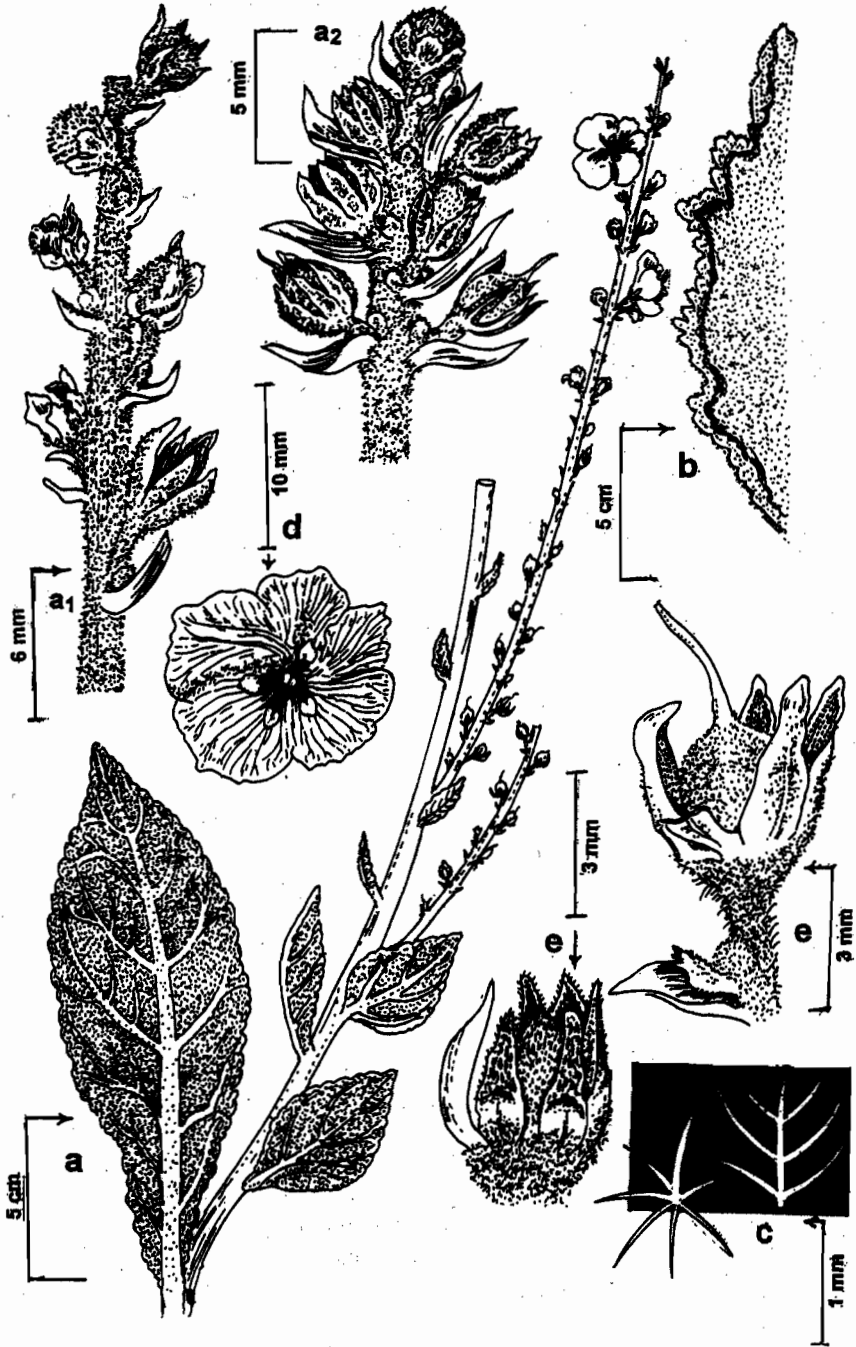


Fig. 1. *Verbascum abyadicum* F.M. Al-Hemaid sp. nov.: a. flowering & fruiting branch, a<sub>1</sub>, a<sub>2</sub> upper part of inflorescence, b. part of leaf, c. indumentum, d. flower, top view, e. young fruits.

Few-branched, biennial, glabrous herb up to c. 60 cm tall. Leaves rosetted, oblong-lanceolate, 7-10 x 3-5 cm, with stellate hairs on both sides, crenate, acute. Racemes 15-30 cm long. Flowers yellow, solitary or 2-3 per axil, pedicels 15-25 mm long. Bracts linear, 3-7 mm long. Calyx lobes linear, 4-5 mm long. Corolla c. 1.2 - 1.4 cm across. Stamens 4, filaments yellow-hairy. Capsule obovate, c. 4 x 5 mm (Fig. 2).

Flowering: March - June.

Distribution: Endemic. Known only from Saudi Arabia so far.

This species is common along the southwestern heights and probably in Yemen. It grows at altitudes of 2100-2400 m and it is often associated with *Dodonaea*, *Juniperus* and *Acacia origina*. *V. asiricum* is distinguished from *V. yemense* by its pedicellate flowers, the pedicels 15-25 mm long, flowers solitary or 2-3 flowers per axil and small, only 1.2 - 1.4 cm across. *V. yemense* always has sessile flowers on short, 1-2 mm long pedicels, flowers clustered and larger, 1.5 - 2 cm across.

Note: This species is being named after the area of its distribution.

**3. *Verbascum chaudharyanum*** F.M. Al-Hemaid *sp. nov.*, Affinis *V. nubicum* Murb. sed differt in bracteae 10-15 mm longe, floribus 2.2-3 cm in diam.; corolla cum rubra maculae. Typus: Saudi Arabia, Tannumah, I.S. Collenette 5321 (holotypus E).

A robust, erect, branched, biennial herb, 50-90 cm tall. Indumentum of stellate hairs. Stems erect, unbranched or with a few branches. Leaves mostly basally rosetted, the petiole of lower leaves 20-30 mm long; lamina broadly elliptic-oblong with rounded base, 8-10 x 5-7 cm, with greyish woolly tomentum of stellate hairs. Racemes 50-60 cm long. Flowers yellow with red marks in the throat, solitary or 2-flowers per axil. Bracts linear, 10-15 mm long. Calyx lobes linear, 2-3 mm long. Corolla 2.2 - 3 cm across. Stamens 5, equal; anthers reniform, medifixed; filaments yellow-hairy. Capsule elliptic-ovoid, 4-5 mm long (Fig. 3).

Flowering: June.

Distribution: Endemic. Known only from type locality.

This species has been collected between An-Nimas and Tannumah among rocks. It generally occurs at altitudes between 6,500 - 7,000.

*V. chaudharyanum* is distinguished from *V. nubicum* by its 10-15 mm long bracts, flowers larger, 2.2 - 3 cm across and the corolla with red marks at the throat. *V. nubicum* has small, 1-2 mm long bracts, the flowers 1.5 - 2 cm across and the corolla without red marks at the throat.

Note: This species is being named in honour of Prof. Shaukat A. Chaudhary for his great contribution towards the study of the flora of Saudi Arabia and establishment of the National Herbarium (RIY).



Fig. 2. *Verbascum asiricum* F.M. Al-Hemaid sp.nov.: a. habit, a<sub>1</sub>, part of leaf, a<sub>2</sub> hairs, a<sub>3</sub>, part of inflorescence, a<sub>4</sub>, flower, a<sub>5</sub>-a<sub>7</sub>, fruit, a<sub>8</sub> seed.

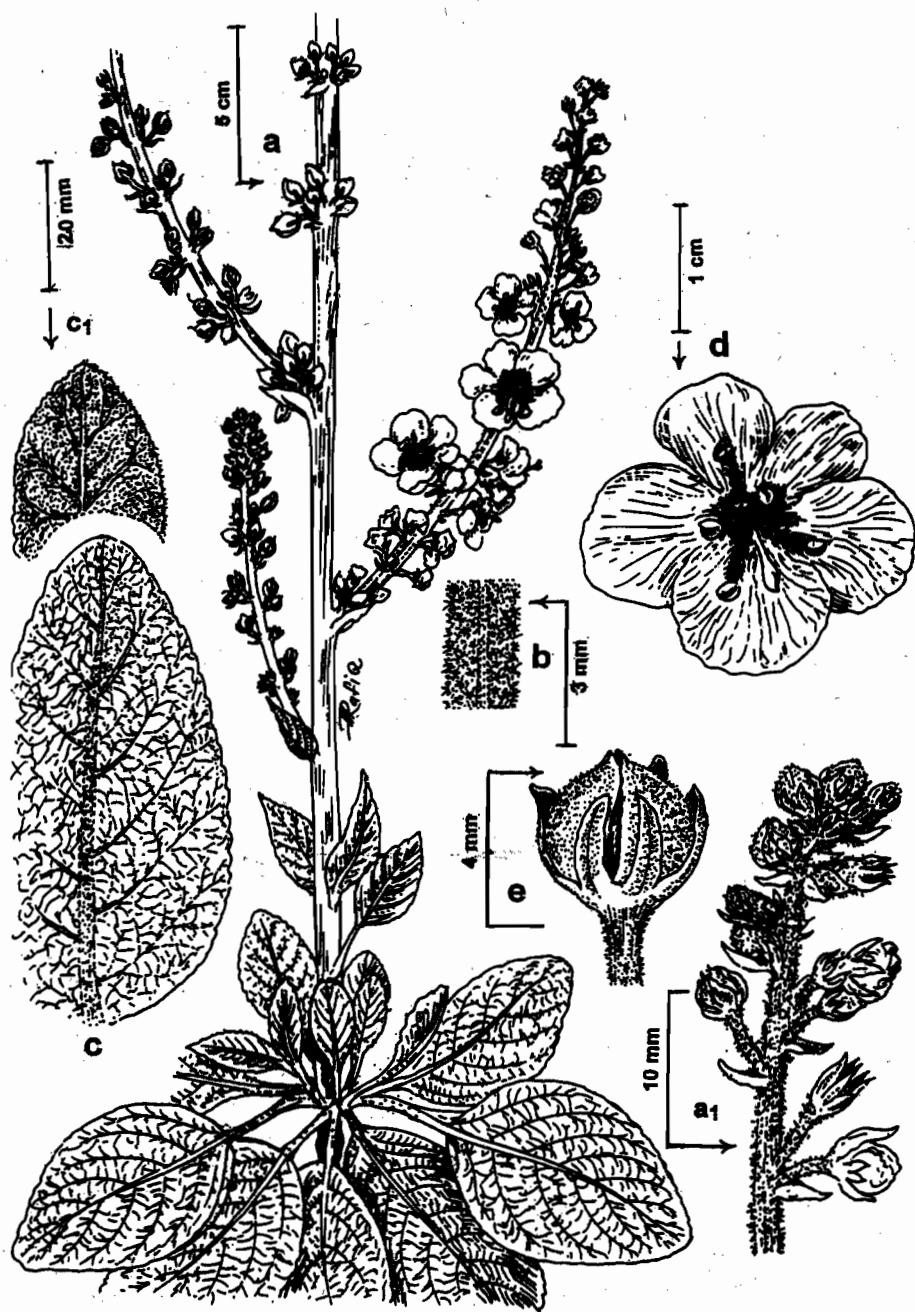


Fig. 3. *Verbascum chaudharyanum* F.M. Al-Hemaid sp.nov.: a. habit, a<sub>1</sub>, part of inflorescence, b. part of stem, c. c<sub>1</sub>, two views of leaf, d. flower, e. fruit.

4. *Verbascum hema-figranum* F.M. Al-Hemaid *sp. nov.*, Affinis *V. longibracteatum* Defl. sed differt in pedicelli 4-5 mm longi, bracteae oppositus, 15-20 mm longe, calyce 8-12 mm longus. Typus: Saudi Arabia, Hema Fiqra, I.S. Collenette 6977, (holotypus E).

A short-lived perennial, white-woolly herb up to c. 1 m tall. Indumentum of dense stellate hairs. Leaves rosetted, petiolate, the petioles short, 2-3 cm long; lamina downy-glandular, lanceolate, 20-45 x 6-10 cm, grey green, crenate. Racemes 60-80 cm long. Flowers yellow, in several-flowered clusters, pedicellate, pedicels 4-5 mm long. Bracts paired, opposite, lanceolate, 15-20 mm long. Calyx lobes linear, 8-12 mm long. Corolla 2 cm across. Stamens 4; anthers orange; filaments white-hairy up to the apex. Capsule elliptic-ovoid, 5-6 mm across (Fig. 4).

Flowering: March

Distribution: Endemic, Known only from type locality.

This species has only been found in Hema Fiqra, 50 km west of Al-Madinah Al-Munawarah on rocky plateau in the upper western area around 1800 m altitude. It is being named after this location.

*V. hema-figranum* is distinguished from *V. longibracteatum* by its pedicellate, 15-20 mm long flowers, with two, opposite, 15-20 mm long bracts and the calyx 8-12 mm long whereas, *V. longibracteatum* always has sessile, unibracteate, 20-40 mm long flowers with short, 3-4 mm long calyx. It is also close to *V. abyadicum* which occurs considerably further south in Saudi Arabia but can be distinguished by its small bracts, its singly arranged flowers and shorter calyx.

5. *Verbascum medinecum* F.M. Al-Hemaid *sp. nov.*, Affinis *V. yemense* Defl. sed differt planta densissimo indumento, bractae 15-25 mm longe, stamina 4. Typus: Saudi Arabia, W. of Medinah, I.S. Collenette, 7116 (holotypus K).

A short-lived perennial, up to c. 150 cm tall. Indumentum of stellate hairs. Leaves rosetted, petioles up to c. 5 cm long; lamina obovate, 10-15 x 4-7 cm, pale-green, shallowly crenate. Racemes 80-120 cm long. Flowers yellow, sessile or with short, 2 mm long pedicels, in clusters of 10 or more flowers. Bracts lanceolate, 15-25 mm long. Calyx lobes linear, 4-5 mm long. Corolla c. 1.8 cm across; lobes obovate. Stamens 4; filament white-hairy. Capsule obovate, 7 x 5 mm (Fig. 5).

Flowering: April

Distribution: Endemic. Known from the type locality only.

This species was collected from Hema Fiqra, 60 km west of Madinah Al-Munawarah on Jabal Al-Ud at about 1800 m altitude. It is being named after the near by great city of Medinah.

*V. medinecum* is distinguished from *V. yemense* by its much denser pubescence, longer, 15-25 mm long bracts and 4 stamens. *V. yemense* has less dense indumentum, smaller 5-6 mm long bracts and 5 stamens.

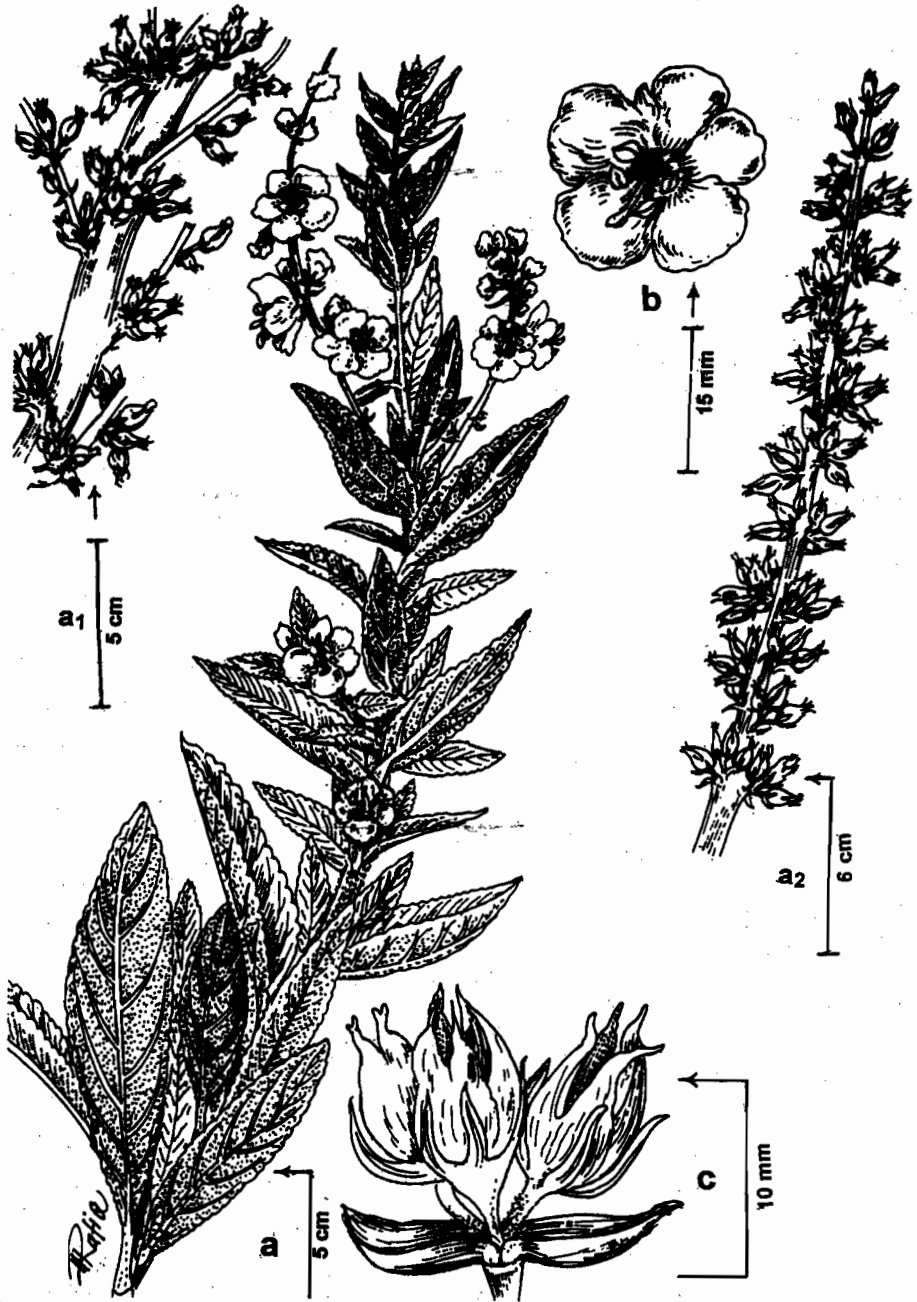


Fig. 4. *Verbascum hema-figranum* F.M. Al-Hemaid sp. nov.: a. habit, a<sub>1</sub>, a<sub>2</sub> part of inflorescence, b. flower, c. fruit.



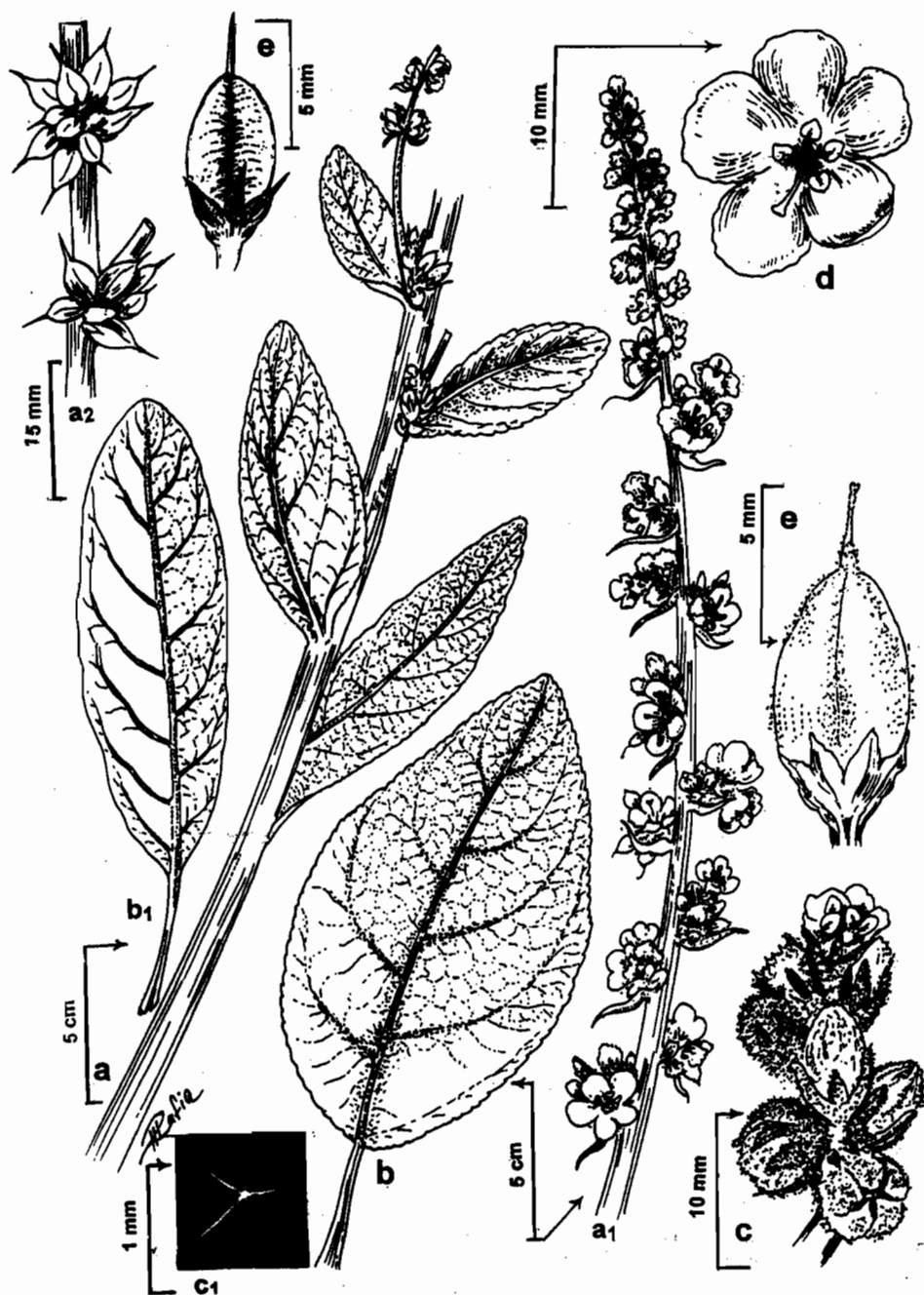


Fig. 5. *Verbascum medinecum* F.M. Al-Hemaid sp.nov.: a, a<sub>1</sub>, part of stem and inflorescence, a<sub>1</sub>, fruiting nodes, b, b<sub>1</sub>, leaves, c, young inflorescence part, c<sub>1</sub> hair, d, flower, e, fruit.

6. *Verbascum sheilae* F.M. Al-Hemaid sp. nov., Affinis *V. deserticola* (Murb.) Hub. Mor. sed differt in folia majoribus crenata, petiole 8-12 mm longa, floregium per aestas. Typus: Saudi Arabia, E. of Duba, I.S. Collenette 9072 (holotype K).

Many-stemmed, low, bushy, white-woolly, biennial herb, 20-40 cm tall. Indumentum of dense, simple-glandular hairs on the stems. Leaves densely white-tomentose with stellate hairs, petioles up to c. 12 mm long; lamina ovate to lanceolate, 3-6 x 1-3 cm, yellowish-green, deep crenate. Racemes 10-30 cm long. Flowers yellow, singly arranged, pedicellate, 3-6 mm long. Bracts linear, 1-2 mm long. Calyx lobes linear, 2-3 mm long. Corolla c. 1 cm across, with deep purple-red blotches at the base. Stamens 4; filaments hairy. Capsule ovate-obovate, 2 x 3 mm (Fig. 6).

Flowering: July-August

Distribution: Endemic. So far known from north of Saudi Arabia.

Several large populations of this interesting species were seen in north of Saudi Arabia, in Wadi Ghamrah, Wadi Lauz and East of Duba, in sand of wadi beds. It is generally distributed at lower altitudes of about 600 m. It is not found in the southwest of Arabia. According to Mrs. Sheila Collenette this species is the only *Verbascum* species in full flower in summer (July-August), others are in full flower around spring.

*V. sheilae* is distinguished from *V. deserticola* by its petiolate leaves, the lamina deeply crenate and in being summer-flowering. *V. deserticola* has sessile leaves, the lamina shallowly lobed and the plants flowering in the spring. This species is named in honour of Mrs. Sheila Collenette who has particular interest in the flora of Saudi Arabia and has made most outstanding contribution in the study of the flora of the Arabian Peninsula.

7. *Verbascum shiqricum* F.M. Al-Hemaid sp. nov. Affinis *V. sinaiticum* Benth. sed differt in petiole 3-6 cm longo, bractae 5-8 mm longe, corolla 1.8-2 cm diam. cum rubrae maculae. Typus: Saudi Arabia, Shiqri, I.S. Collenette, 5277 (holotypus E)

Many stemmed, branched, biennial herb up to c. 1 m tall. Stems glabrous or with sparse indumentum of stellate hairs. Leaves rosetted, petioles 3-6 cm long; lamina obovate-elliptic, 20-30 x 7-9 cm, densely white-tomentose, yellow-glandular, wavy edged. Racemes 60-80 cm long. Flowers yellow with red marks in the throat, sessile or with short, 1-2 mm long pedicel. Calyx lobes linear, 4-5 mm long. Corolla c. 2 cm across; stamens 5; filament red, covered with white hairs. Capsule not seen (Fig. 7).

Flowering: March - April.

Distribution: Endemic. Known from the type locality.

This species distributed mainly in north of Saudi Arabia between Wadi Sawawin and Shiqri in black gravel in narrow wadi at about 900 m altitudes. It is being named after the nearby location of Shiqri.

*V. shiqricum* is distinguished from *V. sinaiticum* by its 3-6 cm long petiole, small, 5-8 mm long bracts and the corolla 2 - 2.8 cm across with red marks on the throat. *V. sinaiticum* has sessile leaves, large, 6-16 mm long bracts and large, 2-2.8 cm wide flowers without markings.

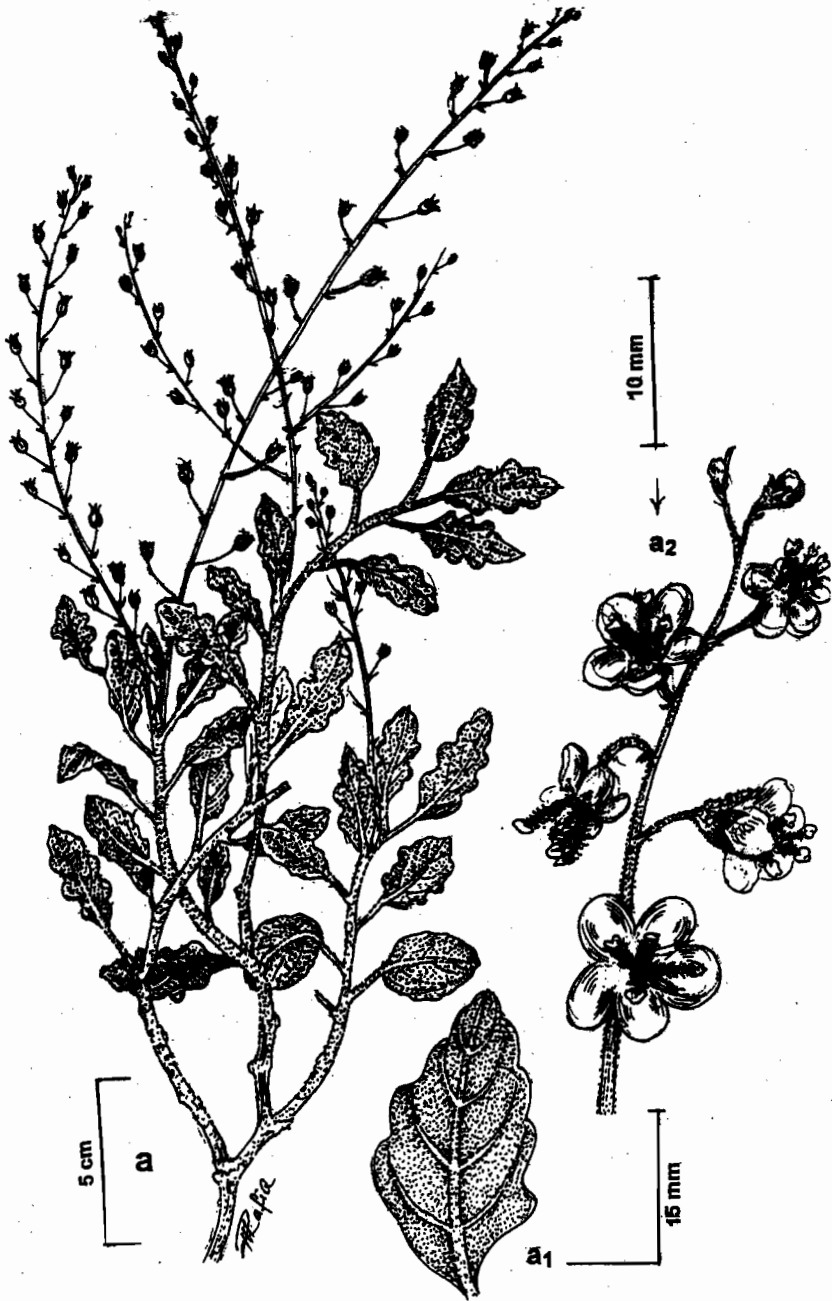


Fig. 6. *Verbascum sheilae* F.M. Al-Hemaid sp.nov.: a. habit, a<sub>1</sub>, leaf, a<sub>2</sub>. part of flowering inflorescence.



Fig. 6. *Verbascum sheilae* F.M. Al-Hemaid sp.nov.: a. habit, a<sub>1</sub>, leaf, a<sub>2</sub>. part of flowering inflorescence.

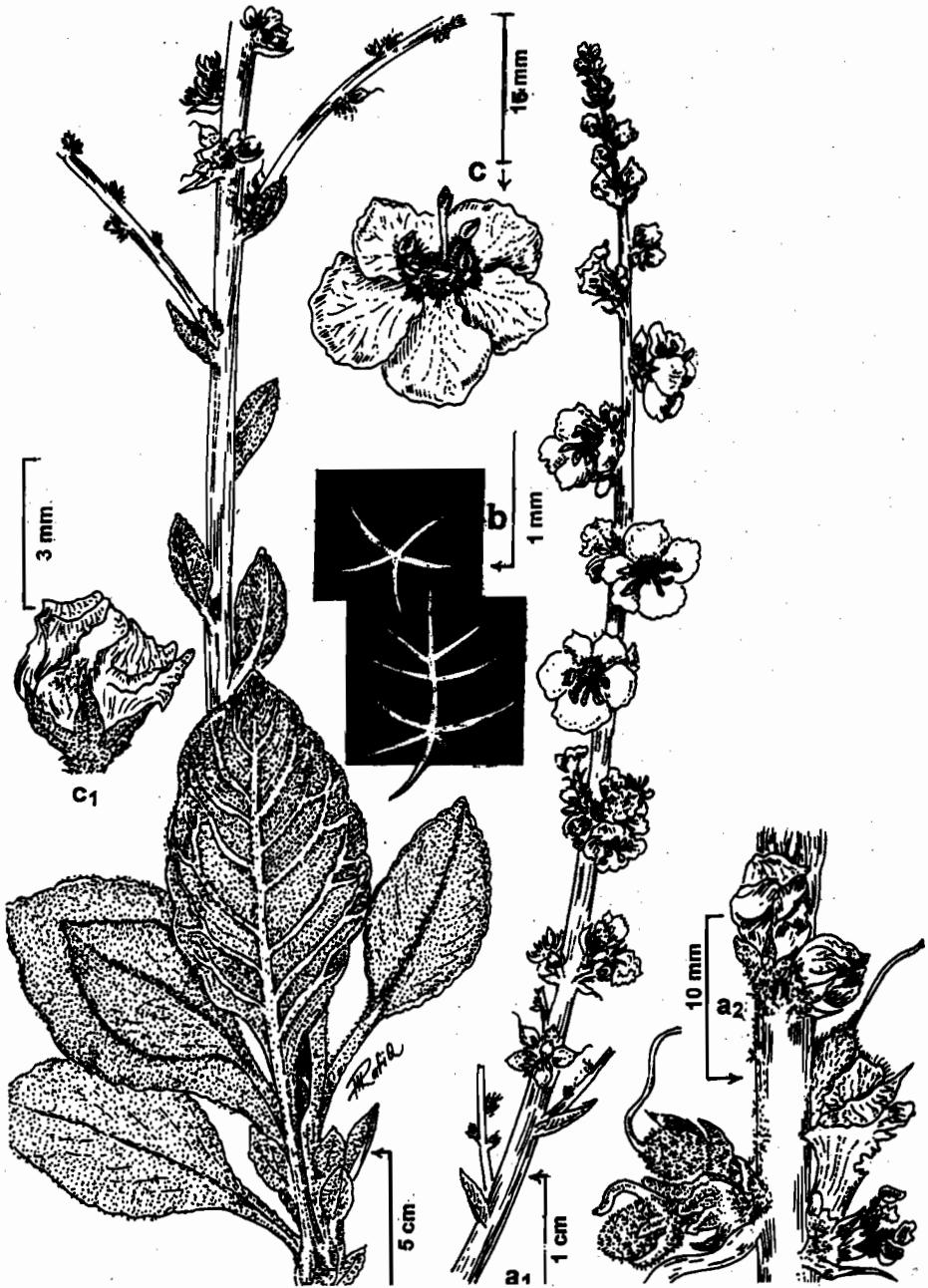


Fig. 7. *Verbascum shiqricum* F.M. Al-Hemaid sp.nov.: a. habit, a<sub>1</sub>, a<sub>2</sub> part of inflorescence, b. hairs, c. flower, c<sub>1</sub>. bud.

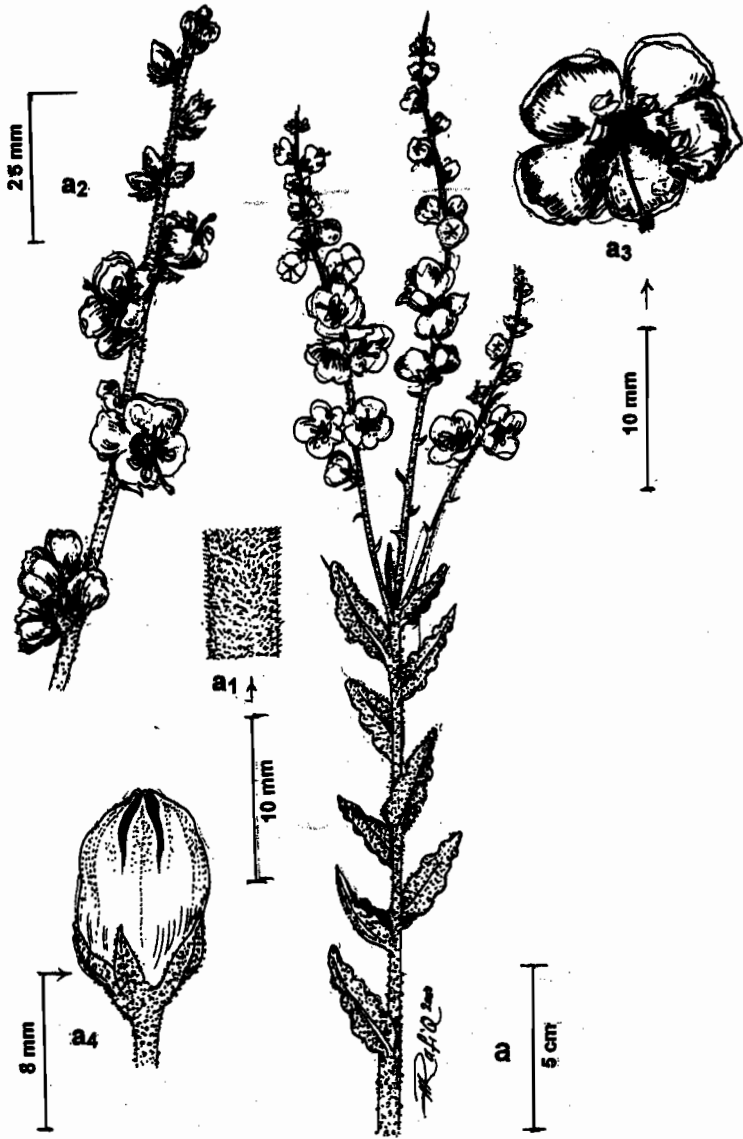


Fig. 8. *Verbascum tabukum* F.M. Al-Hemaid sp.nov.: a. flowering branch, a<sub>1</sub>, part of stem, a<sub>2</sub> part of flowering shoot, a<sub>3</sub>, flower, a<sub>4</sub>, fruit.

**8. *Verbascum tabukum* F.M. Al-Hemaid sp. nov.**, Affinis *V. deserticola* (Murb.) Hub.Mor. sed differt in floribus sessilibus, floribus majoribus, 1.4-1.6 cm longus. Typus: Saudi Arabia, Tabuk, I.S. Collenette 9115 (holotypus K).

*V. tabukum* is readily distinguished from *V. deserticola* by its sessile flowers and larger, 1.4-1.6 wide flowers. *V. deserticola* always has pedicellate and smaller, 0.7-1.0 cm wide flowers.

A compact, low, bushy, white-woolly biennial herb, up to c. 75 cm tall. Indumentum of dense, stellate hairs in the lower region; of simple glandular hairs on the upper stem and inflorescence. Leaves densely white-tomentose, mostly crowded in the lower part, sessile, ovate to obovate, crenulate, 3-5 x 2-4 cm. Racemes 30-40 cm long. Flowers yellow, singly arranged, sessile. Calyx lobes linear, 3-4 mm long. Corolla 1.4-1.6 cm across, each with a small reddish blotch at the base. Stamens 4, anthers reniform, medifixed, filaments lilac-hairy. Capsule not seen (Fig. 8).

Flowering: March-June.

Distribution: Endemic. Known only from the type locality.

Note: This species is being named after the city Tabuk near the place of collection.

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