

## A NEW *ANTHEMIS* (*ASTERACEAE*) FROM SAUDI ARABIA

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*Anthemis sheilae* A. Ghafoor & T. A. Al-Turki (*Asteraceae: Anthemideae*), an endemic species closely related to *A. scrobicularis* Yavin, *A. haussknechtii* Boiss. & Reut. and *A. dicksoniae* A. Ghafoor, is described along with an illustration and distribution map.

*Keywords.* *Anthemideae, Anthemis, Asteraceae, endemic, Saudi Arabia.*

### INTRODUCTION

On a critical evaluation of the materials of the genus *Anthemis* L. for the *Flora of the Arabian Peninsula and Socotra*, the authors noted a specimen which merited recognition as a new species. The specimen was collected by Mrs Sheila Collette and identified as *Anthemis* sp. aff. *scrobicularis* Yavin because of its more or less scrobiculate or minutely oblong pitted achenes. Although this new species falls within the geographic limits of *A. scrobicularis* Yavin, it is distinguished by its bright green 2–3-pinnatisect foliage with less than 1mm wide lobules, much longer peduncles, hairy ray-floret corolla tubes, and achenes crowned by a unilateral erose-dentate auricle. In contrast, *A. scrobicularis* is characterized by 1(–2)-pinnatisect, ash-grey leaves with more than 1mm wide lobules (Fig. 1), short peduncles (4–6cm long), glabrous ray-floret corolla tubes and bald achenes.

***Anthemis sheilae* A. Ghafoor & T. A. Al-Turki, sp. nov. Fig. 1.**

Ab *A. scrobiculari* Yavin foliis atroviridibus 2–3-pinnatisectis, pedunculis fructiferis 10–15cm longis, receptaculo hemisphaerico, tubis corollarum radii pilosis et acheniis unilateraliter auriculatis differt; ab *A. haussknechtii* Boiss. et Reut. pedunculis haud incrassatis 10–15cm longis, phyllariis interioribus minoribus, tubis corollarum radii pilosis et acheniis non-tuberculatis recedit, et ab *A. dicksoniae* A. Ghafoor corolla flosculis disci ad basin tumidis, acheniis scrobiculatis auriculam unilateralem erosodentatum ferentibus distincta.

Holotype: Jabal Umm al-Wual, NNE of Turayf, 2900ft, in gully, NE aspect, black basalt, 24 iv 1994, *I.S. Collette* 9112 (E!)

Annual, up to 30cm tall, bright green herb with ± erect branches from near the base. Tap root 6–8cm long. *Leaves* bright green, hairy, oblong-ovate, 3–4.5cm long, 2–2.5cm broad, 2–3-pinnatisect; lobules linear-oblong, 3–5mm long, less than 1mm wide; basal petiole-like part with simple lobes. *Capitula* 3–3.5cm across, on 10–15cm

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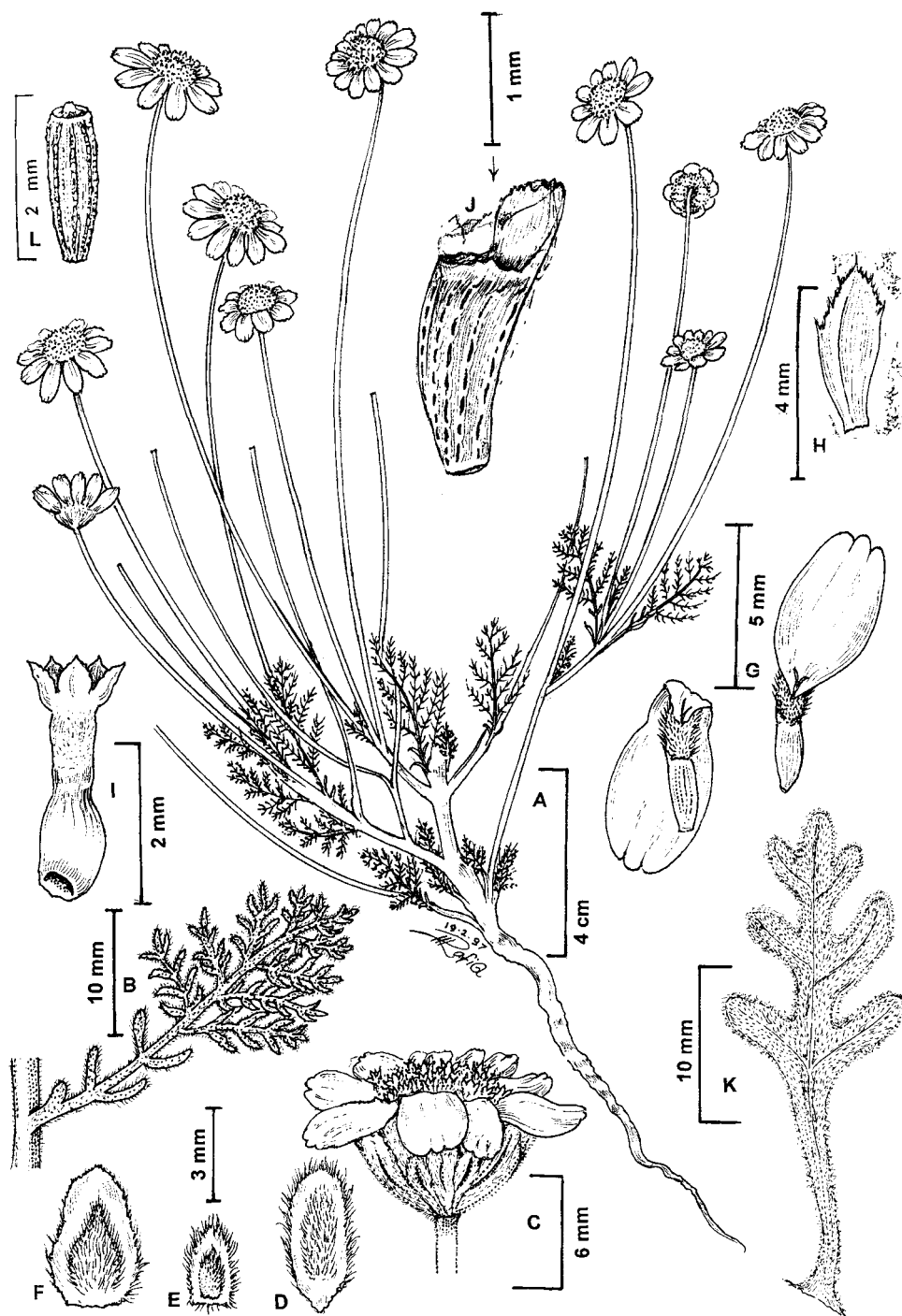


FIG. 1. *A. sheilae*: A, habit; B, leaf; C, capitulum; D-F, phyllaries; G, ray-floret; H, palea; I, mature disc-floret; J, achene. *A. scrobicularis*: K, leaf; L, achene.

long, filiform, unthickened fruiting peduncles. *Involucre* ± campanulate, 8–10mm across; phyllaries 3-seriate: outermost narrowly ovate, c.2mm long, c.1mm broad, hairy, acute; median narrowly ovate, c.3.5mm long, c.1.75mm wide, narrowly membranous on margins in upper half, sparse hairy, acute; innermost oblong-ovate, 4.5–5mm long, c.2mm broad, membranous on margins, ± hairy externally, obtuse. *Receptacle* hemispherical, paleate all over. *Paleae* oblong-ob lanceolate, 3.5–4mm long, c.1.5mm wide, ± carinate, margins erose-dentate. *Ray-florets* 10–14, female, fertile, tube hairy, ligule oblong, 8–10mm long, c.4mm wide, white, trifid. *Disc-florets* yellow, as long as paleae, tube glabrous, 5-lobed, lobes acute, in fruit swollen and purplish in lower half. *Achenes* pale to whitish, oblong-obconical, 1.75–2mm long, 0.4–0.5mm across, slightly curved, scrobiculate along ribs with oblong pits, unilaterally auriculate, auricle 0.5–0.75mm long, irregularly shallowly dissected, ray-achenes exauriculate.

The specific name is in honour of Mrs Sheila Collenette who has provided an extraordinary impetus to the study of plant diversity and floristics in the Arabian Peninsula by authoring *An Illustrated Guide to the Flowers of Saudi Arabia* (1985); her invaluable plant collections are lodged in the herbaria of the Royal Botanic Gardens at Kew (K), Edinburgh (E) and in the National Herbarium of Saudi Arabia (RIY).

*Anthemis sheilae*, a neoendemic, belongs to ser. *Melampodinae* of sect. *Anthemis*. It has probably originated locally and recently by hybridization between *A. scrobicularis*, *A. dicksoniae* and *A. haussknechtii*, which are sympatric or partially so in NW Saudi Arabia (Fig. 2), structurally differentiated and obviously separated spatially. *A. sheilae* exhibits distinct morphological divergence from its putative parents resulting in its recognition as a remarkable new taxon. How far, the degree of morphological distinctness can be maintained by *A. sheilae*, depends on its fertility or success as a hybrid and ability to form a large stabilized population. Further collecting and experimental work is needed on the reproductive behaviour and a study of the range of isolating mechanisms in terms of speciation in the actively evolving *Anthemis* in general and in this case in particular. *A. dicksoniae* (ser. *Melampodinae*) has been recently described from Badanah (Ghafoor, 1997), an area not far from the type locality of *A. sheilae*. It differs from *A. sheilae* in possessing smaller leaves, 15–25 × 10–15mm rather than 30–45 × 20–25mm, comparatively small capitula, 2–2.5cm across rather than 3–3.5cm across, and basally uninflated fruiting disc-corollas rather than inflated ones. *A. scrobicularis*, a most common and widespread species (Fig. 2), distributed from Sinai to as far south as Al-Kharj and Al-Ahsa in central and eastern Saudi Arabia via Jordan, shares with *A. sheilae* the gene-controlled scrobiculate, minutely oblong pitted nature of its achenes. *A. sheilae* differs from *A. scrobicularis* in its finely 2–3-pinnatisect bright green leaves, much longer unthickened fruiting peduncles and erose-dentate auricles of achenes. *A. haussknechtii* (ser. *Haussknechtianae*), a western Irano-Turanian element, has been recently recorded from wadi Mayaal, located between Turayf and Badanah (Ar'Ar) by Ghafoor & Al-Turki (1997). The authors believe that *A. haussknechtii* is in genetic

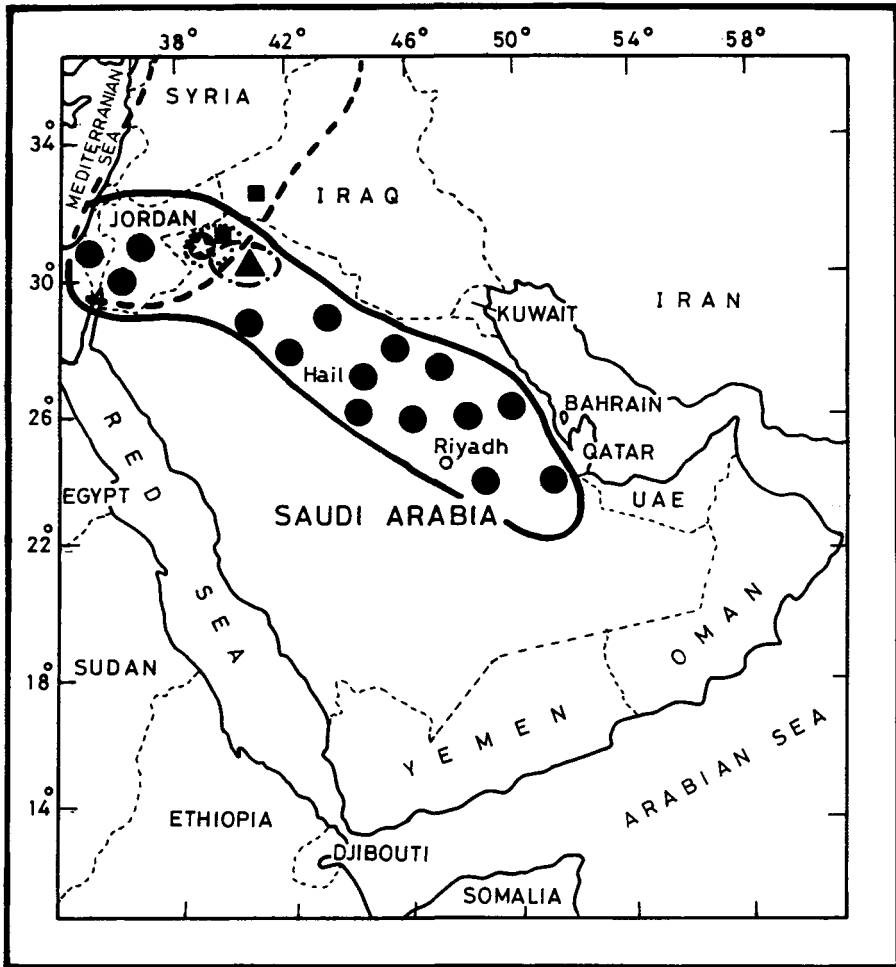


FIG. 2. Distribution of *Anthemis sheilae* (★), *A. scrobicularis* (●), *A. dicksoniae* (▲), and *A. haussknechtii* (■).

contact with *A. dicksoniae* and *A. scrobicularis* and might have contributed to the genome of *A. sheilae* the genes that control leaf size, basally globose inflated fruiting disc-corollas and erose-dentate unilateral auricle. *A. haussknechtii* differs from *A. sheilae* in its smaller capitula, more or less thickened, 4–5cm long fruiting peduncles, glabrous ray-floret tubes and tuberculate achenes.

*Anthemis sheilae* seems to be confined to Jabal Umm al-Wu'al and neighbourhoods (north western Saudi Arabia) which forms part of a roughly circular lava flow (approximately 150km<sup>2</sup> in area and probably less than 50m thick). The area is composed of Miocene-Pliocene olivine basalt resting on limestone of the middle Eocene Umm al-Wu'al formation. *A. sheilae* has a shallow tap root, and grows in flat [?] basins of silty-sandy soils on which a flush of annual herbs develop after rain.

The annual rainfall in the area is above 150mm and snow is not infrequent. It is an addition to the endemic taxa of centre of plant diversity and endemism named SWA6 (southern Sinai and northern Hijaz) by Boulos *et al.* (1994).

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