

Salvia Lanigera var. *grandiflora* Benth: A New Record in the Flora of Egypt

Ahmed El-Banhawy*, Wafaa M. Kamel and Elsayeda M. Gamal El-din.

Botany Department, Faculty of Science, Suez Canal University, Ismailia, Egypt.

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Abstract: *Salvia lanigera* var. *grandiflora* Benth. is a new record to the flora of Egypt. Taxon recognition, characterization, photographs, morphological characters, and a distribution map are given.

Keywords: Lamiaceae, *Salvia lanigera* var. *grandiflora* Benth., Mediterranean basin, New Record, Flora of Egypt, Suez Canal University Herbarium, SCUI.

1 Introduction

Salvia is distinguished from other members of the Lamiaceae by the morphology of the stamens. Two fertile stamens and two lateral staminodes are present in the throat of the corolla tube. These staminodes may have some functions as nectar-secreting organs and perhaps also in the pollination mechanism. The uppermost fifth stamen is almost always absent. The two fertile stamens are unique in the Lamiaceae in that the anther connective is greatly elongated, separating the two cells of the anther. The elongated connective with its two anther cells is articulated on a short filament, and acts as a lever which is extremely important in the pollination mechanisms. The style of *Salvia* is characteristically slender, terminally bifid, and when receptive, often exerted beyond the anthers and the upper corolla lip. The ovary is subtended by an enlarged, fleshy, nectariferous gynobase. Often the gynobase is prolonged distally in a thumb-like lobe called a horn.

The genus *Salvia* belongs to the tribe Menthaeae, represents an enormous and cosmopolitan assemblage of nearly 1000 species displaying a remarkable range of variations. This large genus has become too large for any single worker to successfully treat it in a monographic style. Rather, revisions and monographs deal with more manageable portions of the genus, such as subgenera, or species of a certain geographical region [1,2,3].

The Mediterranean Basin, as well as the Middle East ecoregion, has attracted the concern of many taxonomists especially the genus *Salvia* (Sage) due to its medicinal and economic importance. Linnaeus (1753) recorded and described 27 species in the genus *Salvia* of which *Salvia aegyptiaca* was the only species recorded from Egypt [4]. Etlinger (1777) recognized 48 species of *Salvia* [5].

Bentham (1832-1836) was the first worker to attempt a natural arrangement of the species [6]. Tristram (1884), Dinsmore (1911), Post (1932), Hedge (1974) and Feinbrun (1978) recorded eight *Salvia* species from Palestine, Syria, Egypt and the rest of North Africa [7,8,9,2,10]. These are *Salvia spinosa*, *Salvia palaestina*, *Salvia sclarea*, *Salvia dominica*, *Salvia verbenaca*, *Salvia lanigera*, *Salvia aegyptiaca* and *Salvia deserti*.

In recent collections carried out by the first author from the Mediterranean coasts of Egypt, he recognized, characterized and identified *Salvia lanigera* var. *grandiflora* as a new record to Egypt.

2 Materials and Methods

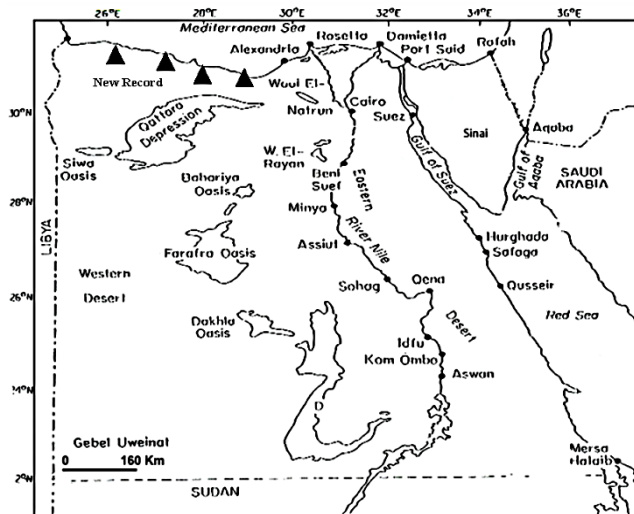
Study area:- The new record of *Salvia lanigera* var. *grandiflora* Benth. mentioned in this article is based on individuals recorded and collected from the Western Mediterranean coast of Egypt starting from Alexandria (31° 15' 27.1764" N 29° 59' 43.6272" E) to Mersa Matruh/El-Saloum road, (31° 21' 15.6384" N 27° 14' 14.3376"E) along of 280 km. Map 1.

Specimen characterization:- For the freshly field-collected taxa, as many as possible herbarium specimens were examined with an A.O Torte-stereomicroscope and Nikon light microscope. The macro-morphological and micromorphological data given for stem, leaf and nutlet are based on those specimens. In North West Coastal region of Egypt.

Taxon recognition, identification and nomenclature:- The taxon recognition is based on recent good collections as well as investigations of the lectotype deposited at Kew and a syntype photograph provided by the Munich herbarium curator. The specimens collected for this study were kept in

*Corresponding author e-mail: ahmedbanhawy@science.suez.edu.eg

Suez Canal University Herbarium (SCUI).



Map (1) Distribution of *Salvia lanigera* var. *grandiflora*.



Figure (1) *Salvia lanigera* var. *grandiflora* Benth



Figure (2) Inflorescence of
 A *Salvia lanigera* var. *lanigera*; calyx tip green
 B *Salvia lanigera* var. *grandiflora*; calyx tip colored

These specimens were carefully examined and identified using Täckholm [11], Hedge [2], Feinbrun [10] and Boulos [12]. Valid names as well as synonyms were verified using

International Plant Names Index (IPNI), Global Biodiversity Information Facility (GBIF), Med-Checklist and The World Checklist of Selected Plant Families (WCSP). Figs 1-3.

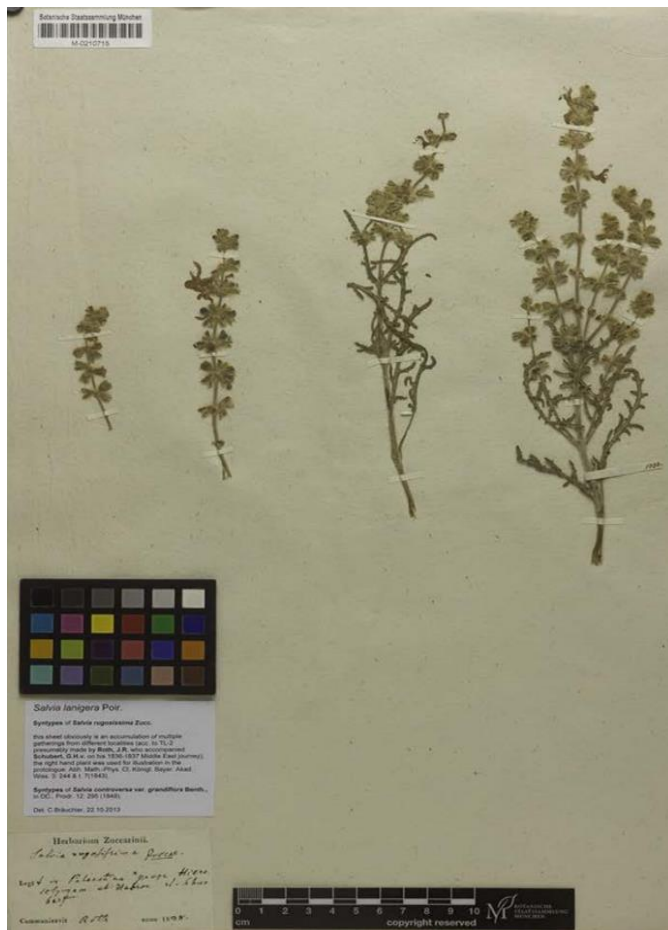


Figure (3) Syntype of *Salvia rugosissima* Zucc. Botanische Staatssammlung München (M), M02

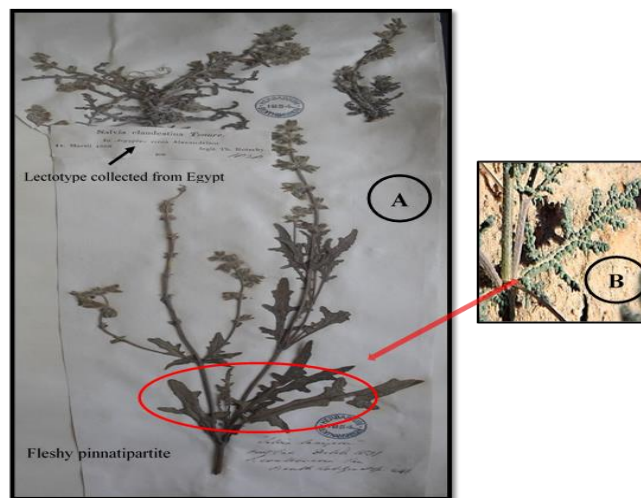


Figure (4) A. Syntype of *Salvia lanigera* var. *grandiflora* Benth; leaves pinnatifid & fleshy. B. *Salvia lanigera*

var. *lanigera*; leaves pinnatisect.

3 Results

Syntype! *Salvia controversa* Ten. var. *grandiflora* Benth. DC. Prodr. 12:295 (1848). Figure 3.

Perennial with a short woody rootstock, **Stem** 20-40 cm high erect, quadrangular, much branched at base, densely white tomentose, and with long multicellular glandular trichomes. **Inflorescence** 6-8 dense flowers. **Leaves** ovate or triangular in outline, 3-6 × 1.5- 2 cm, pinnatipartite; pinnae fleshy irregularly lobed, mostly with linear bullate, obtuse segments; margin crenulate, revolute, collicultae to reguose, with eglandular trichomes on both sides, and with few sessile oil glands on the lower surface. **Bracts** greenish, broad ovate, 4.5 × 4 mm, acuminate, sessile, distinct clasping at base. **Flowers** pedicellate; pedicels straight. **Calyx** tubular, campanulate, green or greenish, calyx tips reddish brown or violet, 13-veined, white villous, with long spreading eglandular and short glandular trichomes; upper lip 3-dentate; teeth sub-equal; lower lip 2-dentate, slightly longer than upper lip, all teeth equal. **Corolla** deep violet, longer than calyx, 1-1.8 cm long, tube with pouch, glabrous inside; upper lip slightly falcate, covered with long e-glandular trichomes; lower lip shorter. **Stamen** connectives longer than filament, 1-1.5 cm long, upper thecae fertile; lower sterile, dolapiform, united. **Nutlets** rounded-trigonous, black, Figures (1, 2 & 3).

Studied specimens:- Egypt, western Mediterranean coastal region, El-Saloum road, Negila village, 31° 33' 49" N 26° 38' 05" E., 16/04/2010, *Ahmed EL-Banhawy*, SCUI. Western Mediterranean coastal region, 223 km from Alexandria toward Mersa Matrouh, 31° 06' 49" N 27° 48' 52" E., 17/04/2010, *Ahmed EL-Banhawy*, SCUI. Western Mediterranean coastal region, Ras El-Hekma village, 17/04/2010, *Ahmed EL-Banhawy*, SCUI. Mediterranean coastal region, Abu Sir – Ameriah Road, 26/03/1961. *Vivi Täckholm*, CAI. Western Mediterranean coastal region, Mariut Region, 26/03/1961, *Nahed Amin*, CAI.

4 Discussion

The genus *Salvia* is represented in the Egyptian flora by ten species and five varieties [11], while, Boulos [12] recognized only 10 species. Boulos treated *Salvia acetabulosa* and *Salvia pinardi* as synonyms of *Salvia multicaulis* and *Salvia graveolens* as a synonym of *Salvia dominica*. *Salvia lanigera* var. *grandiflora* was never mentioned by both authors. Feinbrun [10] recorded the distribution range of *Salvia lanigera* var. *grandiflora* Benth., he did not mention this taxa to be present in Egypt. This taxon has close affinity with *Salvia lanigera* var. *lanigera*. It differs in having fleshy pinnatipartite leaves with revolute margin, plant much branched at base and calyx tip reddish brown or violet. Regarding morphological differences, restricted distribution to Northern West coastal region of Egypt; the authors of the

current study recognized *Salvia lanigera* var. *grandiflora* Benth. as a new record to Egypt.

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