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Gundelia tournefortii L. (Compositae) – an approach

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Abstract

A drawing has been determined as lectotype for *Gundelia tournefortii*, the corresponding historic specimen has been chosen as epitype. Some uncertainties remain: e.g. the colour of the flowers. The analyses of photos from the internet and the comparison with recently collected material allows to describe the characters of *Gundelia tournefortii*.

Key Words: Compositae, *Gundelia*, *G. tournefortii*; characters, distribution.

Introduction

Gundelia tournefortii was described by Linné (1753). For a long time the genus *Gundelia* was thought to be monospecific, additionally described taxa being put in synonymy again (e.g. Rechinger 1989, Kupicha 1975). Recently new species have been described (Vitek et al. 2010, 2014, Nersesyan 2014, Armağan 2016). During these investigations the following characters have been shown as important in the genus *Gundelia*: general habit (size of plant and number of synflorescences), colour of flowers, number of flowers forming one synflorescence, form of fruit and the forms of the spines on the fruit. The habitat is one more important piece of information, as the different species can be found in different vegetation types. As for other taxa, the information is rarely given on the labels of the herbarium sheets, therefore not completely available also for *G. tournefortii*.

A lectotype (drawing) and an epitype (corresponding specimen) were chosen by Vitek & Jarvis (2007) as types for *Gundelia tournefortii*. The lectotype is a drawing in Rauwolf (1583) cited by Linné (1753) and the epitype is the corresponding specimen, a flowering plant. There is no information on: the fruits, the flower colour is given in the german original description as "leibfarben" (= "colour of body", Rauwolf 1583), but is this whitish, brownish, yellowish or pink? For final clarification it would be necessary to collect additional material at or, near the type locality. But this place, Aleppo in Syria, is inaccessible at the moment, and probably will be for the next years. Even if it should be accessible again, the question is whether any of the edible plants survived the times of conflict.

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Fig. 1: *Gundelia tournefortii*, indumentum in the synflorescence; a) epitype in L, detail (photo © Naturalis, Leiden); b) 2014 H. Leschner s.n. [W 2014-0014150].

Fig. 2: *Gundelia tournefortii*, life photos of synflorescences showing the indumentum and the flower colour; Israel (photos © Y. Melamed).

Fig. 3: *Gundelia tournefortii*, fruits [W 2014-0014149].

During field work and herbarium studies several well distinguished units within *Gundelia* have been identified. In the meanwhile some have been described as different species (Vitek et al. 2010, 2014, Nersesyan 2014, Armağan 2016), some had been named previously on different ranks and need to be evaluated, others deserve description as separate taxon. For this work to continue it is necessary to define, what is understood under and what characters are assigned to *G. tournefortii* L. in its strict sense.

Material and methods

The epitype of *Gundelia tournefortii* (Fig. 1a) has been compared with specimens from the core distribution areas and photos available from the internet have been analysed. Fruits have been collected from a population with known characters.

Specimens: Israel, Northern Negev, Hurvat Pura, 34.7770 E / 31.4969 N, alt. 200 m, 2014, H. Leschner s.n. [W 2014-0014150, in flower]; – Israel, Judaean Mountains, Nahal Teqoa (West Bank), 35.2368 E / 31.6494 N, alt. 550 m, 2014-07-01, H. Leschner s.n. [W 2014-0014149, fruits]; – Photos checked for the analyses: see the list of selected sources in the internet (appendix 1).

Results and discussion

The analysis of the epitype and the comparison with the recently collected material shows equality of the indumentum. Therefore *Gundelia tournefortii* is defined as "densely hairy with yellowish to yellow flowers and partial inflorescence/fruits formed of 5–6 (–7) flowers".

A detailed description of *Gundelia tournefortii*, especially of the history of the genus, is given by Hind (2013 – the painted plate is based on material near Ankara and not depicting this species).

Lectotype (Vitek & Jarvis 2007): (Aleppo) Rauwolf 1583: t. 74.

Epitype (Vitek & Jarvis 2007): (Aleppo), Rauwolf, hort. sicc. 81 [L] (Vitek & Jarvis 2007: fig. 2–3; Fig. 1a).

Other syntype material: Armenia, s.d. Tournefort s.n. [P 00670374 scan!]. – The specimen has been collected from “Armenia”, at that time covering a much bigger area than today. The exact locality could not be clarified. It is not possible at the moment, to assign

Fig. 4: *Gundelia tournefortii*, habitat; a) natural environment (photo © Y. Melamed); b) in cultivation (photo © S. Lev-Yadun 2009).

this specimen to any of the known taxa, but it is different to *G. tournefortii* in its strict sense and has therefore to be excluded.

The characters (terminology follows Classen-Bockhoff et al. 1989): Plants up to c. 0.8 (–1) m, normally branched with several upright branches, each of which ending in a synflorescence. Whole plants more or less densely covered with thin cobwebbed hairs, these being appressed to the leaves and sometimes forming a dense tomentum. Near the stem these hairs gradually change to arachnoid hairs. Especially in young state the synflorescences are densely covered with arachnoid hairs. Synflorescences up to 7 cm long, excluding the bracts up to 4 cm diameter. Bracts normally are without lateral spines. Partial synflorescences in the middle part of the synflorescence formed by 5–6 (–7) flowers. The inside flower colour is yellowish to yellow, outside yellow to brown (Fig. 2a, b). Fruit is cuneiform to more or less rectangular (seen from other side), 1.3–1.5 cm long (including spines); the spines adhere to a crown-like structure, they have ± equal length, up to 4 mm long, directed ± straight upright (Fig. 3).

Habitat: dry stony slopes (Fig. 4a) and steppe.

Distribution: Based on the available information the distribution area of *Gundelia tournefortii* covers Egypt (North Sinai), Israel, Jordan, Syria, Cyprus, extending to the southernmost parts of Turkey, and probably also to Iraq and Iran. The exact distribution needs further investigation. The information on the plants cultivated in Algeria is insufficient for decision. As well the identity of the records of *Gundelia tournefortii* from other countries (Azerbaidjan, Afghanistan) needs critical evaluation.

Gundelia tournefortii is a utility plant in the Middle East and Turkey – mostly a food plant. The young leafs bases are considered a delicacy used in the local cuisine of Israel, Jordan and the Palestinian Authority. From November through to March they are collected in large amounts from the wild because market prices are very high. Semi-dry inflorescences are collected before dehiscence to be used as filters in the water collecting entry of cisterns; and also as brooms.

Populations of *Gundelia tournefortii* in the area are dwindling due to over-utilisation in the wild. In some areas the populations are nearly extinct. The plant was entered into Israel's list of plants protected by law, it is also partly protected in the Palestinian Authority. However, illegal collecting is still very common in the area.

In order to meet demands, it had been cultivated for the past two decades, both in Israel and in the Palestinian Authority (Fig. 4b). Yet, since the thorns present a great challenge in cultivation, the extent of cultivation is still limited.

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Appendix 1: Selection of sources in the internet (checked 2016-11-03)

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