

## New Data about the *Trifolium hirtum* in Romania

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### Abstract

In “The Romanian Flora” the *Trifolium hirtum* species was mentioned by Janca (1979) in Banat, in the Almajului Mountains, Mt. Trescovat, but it was considered dubious in our country (Nyárady, 1957), being mistaken for *T. diffusum*. After about 138 years the presence of the *Trifolium hirtum* species has been confirmed in Oltenia (Ciocârlan and Costache, 2004). The method of research used was the observation and the collected material was examined in detail, both rough and preserved, using the binocular magnifying glass. The detailed images were taken with a digital camera provided with a magnifying device. The discovery of this species is of major importance for the flora of our country and that is the reason for its detailed description below. We present the new data about the *Trifolium hirtum* species in Romania, which consist in some additions to its description and in the proposal of a dichotomy key for its determination and a chorology map with its distribution in Romania. The identification of the species can be made easily by using the key of determination proposed by us, especially as we have not found one in the relevant research literature. On the other hand there are certainly other locations where the species exist and this could be the object of our future research.

**Keywords:** dichotomy, flora, key, Oltenia

### Introduction

In “The Romanian Flora” Vol. V (1957) [within] in the research report on *Trifolium* genus, A. Nyárady makes the following observation: “We consider dubious the existence of the species *T. hirtum* All. Auctuar. 20 (1789) in our country. The mention is made by Janka who reports to have found it in Banat, in the Almajului Mountains (Fig. 7), Mt. Trescovat [Neilr. Aufz. 103 (1870)] and by Ascherson et Graebner Syn. VI. 2: 564 (1908). It resembles the previous species very much,

though distinguishing from it through its obovate, more hairy folioles, with a more prominent nervure and the calyx tube 20-nerved, thick haired. It was probably mistaken for *T. diffusum* Ehrh.” (pag. 207). After about 138 years in Romania, the presence of the *Trifolium hirtum* species is confirmed by it being found in Oltenia (Ciocârlan and Costache, 2004). Beside the species description, we consider necessary the presentation of a dichotomy key of determination, so that it can be identified.

### Materials and Methods

The method of research used was the observation. During the research in the field the identified species were collected and the following issues were noted: date of col-

lection, the locality as well as the location conditions. Subsequently, the material was examined in detail, both rough and preserved, using the binocular magnifying glass. The determinations were established according to the relevant research literature. The detailed images were taken with a digital camera provided with a magnifying device.

### Results and Discussions

The discovery of this species is of major importance for the flora of our country and that is why we are giving a detailed description of it below.

*Trifolium hirtum* All. Auct. Fl. Pedem. 20 (1789); Janka, Neilr. Aufz. 103 (1870); Asch. & Graebn., Syn. VI. 2: 564 (1908); Hayek, Prodr. Fl. Penins. Balc. I: 871 (1926); Stoian., Sborn. Ban 26: 88 (1930); Bobrov, Fl. Sist. Vâs°. Rast. VI: 321 (1947); Nyárady A., Fl. Rm. V: 207 (1957); Coombe, Fl. Eur. 1: 169 (1968); Cozhukharov, Fl. Bu. VI: 558 (1976); Zangheri, Fl. It. I: 329 (1976).

Annual, T., V-VI. Numerous stems, non-ramified with heights between 9 and 30 cm, perpendicular sericeous-hairy (Fig. 1, 2, 4A). The leaves folioles of 9-15 (30) mm, obovate-cuneate, subsessile, toothed at the brims, sometimes easily emargined ± pubescent joined (Fig. 1). Speared stipellas, with the top brusklly narrowed, long, silky, setaceous hairy dispersed (Fig. 3; 4- 2246). Solitary heads (capitulum) of



Fig. 1. *Trifolium hirtum*-Solitary inflorescences (original)



Fig. 3. Detailed of the stipella (Costache, 2005)

*Trifolium hirtum* All., is a part of the subgenus *Trifolium*, *Trifolium* section. The identification of the species



Fig. 2. Habit in the autumn season (original)

15-20 (25) mm breadth (Fig. 1), persistent in fruit (Fig. 2), densely hairy, globose, sessile, with an involucre formed of dilated stipules and one or sometimes two 3-foliolate leaves (Fig. 1). The calyx presents 20 nervures (Fig. 5), covered with thick hairs. The calyx teeth are a little bit longer than the tube (the calyx length is of almost 10 mm, hence the tube-4mm, the teeth-6mm). The corolla 12-15 mm (by drying it becomes brown), longer than the calyx (Fig. 1). The pod is as long as the tube. The seed is in globe shape, with a yellow tegument, of almost 2 mm length and 1, 5 mm breadth (Fig. 6).

Location: Romania, Oltenia Region, Mehedinti District, Strehaia City, Stancesti Village, Stancesti Hill, 44° 60'N and 23° 27'E (Fig. 7), 20.VI.2003 (Costache, 2005).

Coenotaxonomy: *Festuco-Brometea*, *Festucion valescicae*.

Geoelement: South Europe, North Africa.



Fig. 4. Outline of stipella shape according to Zangheri, 1976 (2245 - *T. cherleri* si 2246 - *T. hirtum*).

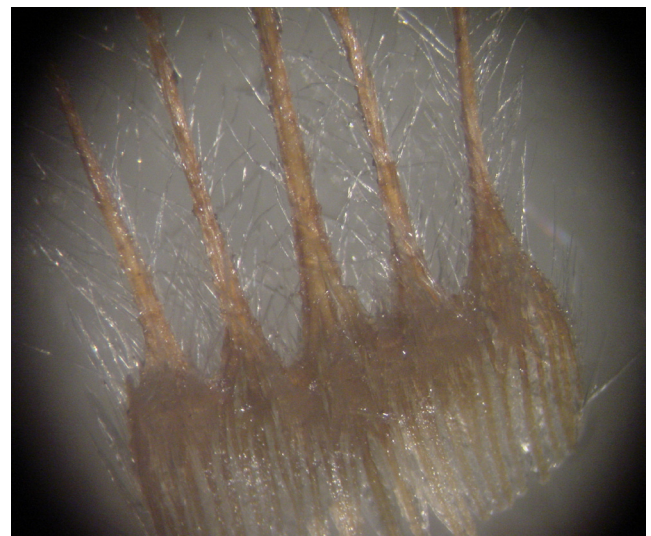


Fig. 5. Splitted calyx, presenting 20 nervures, (Costache, 2005)



Fig. 6. The seed (Costache 2005)

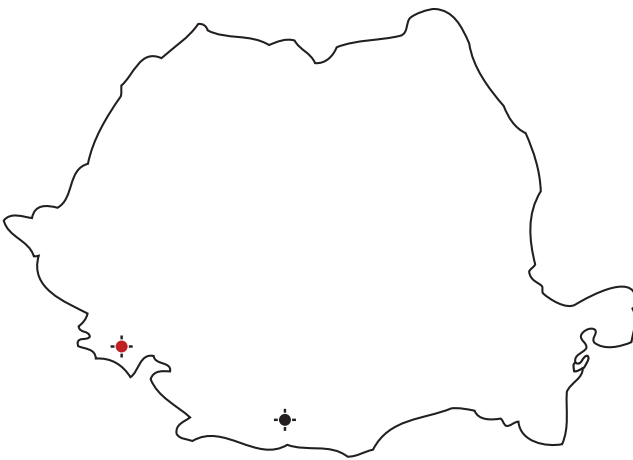


Fig. 7. The chorology of the *Trifolium hirtum* in Romania:

- ◆ Almajului Mountains, Mt. Trescovaț;
- ◆ Stăncești Hill, (original)

can be made easily by using one of the following keys of determination:

1. Flowers without bracts. The neck of the calyx is closed by a hairy ring. The hull closed inside the calyx's tube, having 1-2 seeds.
  2. The calyx's tube with 20 veins (barely visible because of the thick hair).
    - 3a. Annual plants
      - 4a. Capitulum pedunculate, without involucre. Corolla of 7-8 mm, pink ..... *T. lappaceum* L.
      - 4b. Capitulum sessile, involucre ..... 5
    - 5a. The teeth of the calyx are twice as long as the tube. The corolla is longer than the calyx ..... *T. hirtum* All.
    - 5b. The teeth of the calyx are ± equal with the tube. The corolla is equal or smaller than the calyx ..... *T. cherleri* L.

Observation. *T. lappaceum* L. and *T. cherleri* L. have not been discovered in Romania, but there is a possibility of them to be found on the southern part of Oltenia.

- 3b. Perennial plants

## Conclusions

The presence of the species *Trifolium hirtum* in Romania is confirmed. Unfortunately it has not been identified in other locations; therefore the establishment of the provenience and dynamics of this species remains a desideratum for the future.

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