

## SOME CORRECTIONS TO THE IDENTIFICATION AND DATA ABOUT THE OCCURRENCE OF *HIEROCHLOË REPENS* (HOST) SIMONKAI IN ROMANIA

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**Abstract:** According to the floristical works on the Carpathian-Basin from Romania and Hungary, *Hierochloë repens* is not found in Romania. The morphological examinations by Penksza et al. [6] demonstrated, that in Hungary not *Hierochloë odorata*, but *Hierochloë repens* is found. These findings led us to analyse this problem also in Romania, by re-examining the collected material of the genus *Hierochloë* in the Herbarium of the „Al. Borza” Botanical Garden from Cluj Napoca. In this paper we give the corrected identification keys for the *Hierochloë* species occurring in Romania and some data about the occurrence of *Hierochloë repens* in Romania.

### Introduction

According to the floristical works on the Carpathian-Basin from Romania and Hungary [1,2,3,4,5,7,8,11,12], in the referred regions two species of *Hierochloë* occur: *Hierochloë australis* (Schrader) Roemer et Schultes 1817 and *Hierochloë odorata* (L.) Beauv. 1812. On the other hand Simonkai [9] reports about *Hierochloë repens* (Host) Simonkai 1886 occurring in Transylvania (Romania). Later, Ciocârlan [2,3] names the *Hierochloë repens* occurring in Romania, but without the correct separation from *H. odorata* (mentioning the *Hierochloë repens* (Host) Simonkai 1886 as the synonym of *H. odorata* auct.).

The monographical elaboration of the genus *Hierochloë* from the Northern Hemisphere was written by Weinmarck [14], who had given the determination keys for this genus in the Flora Europaea [13]. According to this work, from the European *Hierochloë* species, the *H. australis* and *H. repens* are found in Romania and Hungary.

The occurrence of *Hierochloë odorata* in Hungary was questioned by Somlyay et al. [10]. The morphological examinations by Penksza et al. [6] demonstrated, that in Hungary not *Hierochloë odorata*, but *H. repens* is occurring. The aim of the present study was to clarify the situation of *Hierochloë repens* also in Romania.

### Materials and methods

We have re-examined the collected material of the genus *Hierochloë* in the Herbarium of the „Al. Borza” Botanical Garden from Cluj Napoca. The present paper reports about the corrections on this material. We give here the identification keys for the three *Hierochloë* species mentioned mostly confused and incorrectly in the floristical works from Romania: *Hierochloë australis*, *H. repens* (Fig. 1A, 2A, 3A) and *H. odorata* (Fig. 1B, 2B, 3B). The keys are based on the original description of the species from the monograph of Weinmarck [14], completed with the results of Penksza et al. [6].

### Results

Identification keys:

**1 a** The awn of the outer lemma originates from the distal part of the lemma, it stands taller than 1 mm (-3 mm), it is standing out of the lemmas. The plant is densely caespitose. The adaxial surface epiderm of the leaf has a whitly waxed cover, the abaxial surface is dark-green (this is easily recognizable in the vegetative stage, too), its width is (1,5-)-3-5(-9) mm. Panicle lax with few florets, (11)-20-35(-70).

..... **Hierochloë australis** (Schrader) Roemer & Schultes

**b** The outer lemma is awnless, or the awn originates from the apical part of the outer lemma and is shorter than 1 mm. Rhizomatous plants ..... **2**

**2 a** In the basal part of the sprouts there are many greyish leaf sheaths. The width of the stock leaf at the medial part is (5-)-7-9(-20) mm. Both sides of the leaf are greyish and hairless. Length of uppermost leaf of the stem is 20-35(-60) mm. The panicle is oval, (5-)-6,5-10(-14) cm long and with (80-)-120-160(-300) spikelets. Awn length of the outer lemma is (0,1-)-0,2-0,5(-0,8). The glumellas are shorter than or of the same length as the outer lemma of the two lower, sterile flowers.

..... **Hierochloë repens** (Host) Simonkai

**b** In the basal part of the sprouts there are no greyish leaf sheath. Width of the stock leaf is (2,2-)-3,5-7(-12,5) mm, green and with long hairs on the adaxial surface epiderm. Length of the uppermost leaf of the stem is 10-45(-60) mm. Panicle pyramidal, (2,5-)-3,5-9(-12,5) cm long, with (11-)-20-60(-100) spikelets. Length of awk of the outer lemma is 0,8 mm. The glumellas are longer than the outer lemma of the two lower, sterile flowers.

..... **Hierochloë odorata** (L.) Beauv.

Corrected data of occurrence:

Occurrence of *Hierochloë repens* in Romania on the base of corrected herbar material: Cluj county (Apahida -Ciuha mountain-, between Apahida and Dezmir, between Dezmir and Pata, between Someşeni and Dezmir, Fânaşele Clujului, Sf. Gheorghe mountain, Turda), Timiş county (near Timişoara), Bistriţa Năsăud county (Rodna), Neamţ county (Tămăşeni), Olt county (Spineni), Mehedinţi

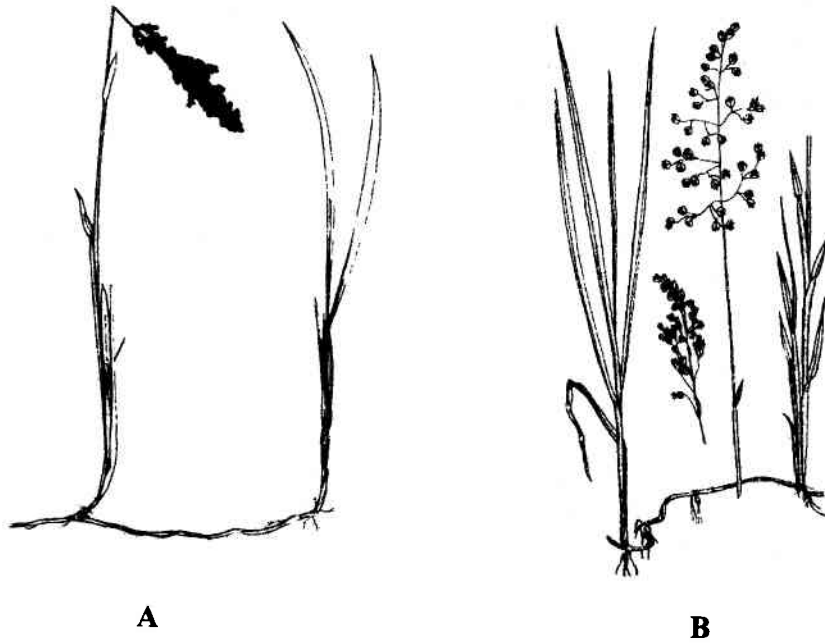


Fig. 1: The habitus of *Hierochloë repens* (A) and *H. odorata* (B) (A: Baranyi Lóránt, B: according to Hubbard)

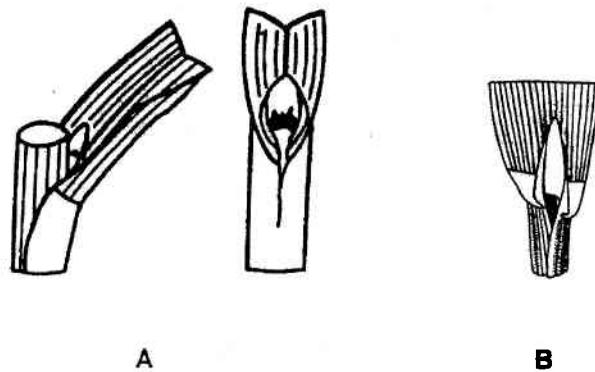


Fig. 2: The ligule of *Hierochloë repens* (A) and *H. odorata* (B) (A: Penksza K. original, B: according to Hubbard)

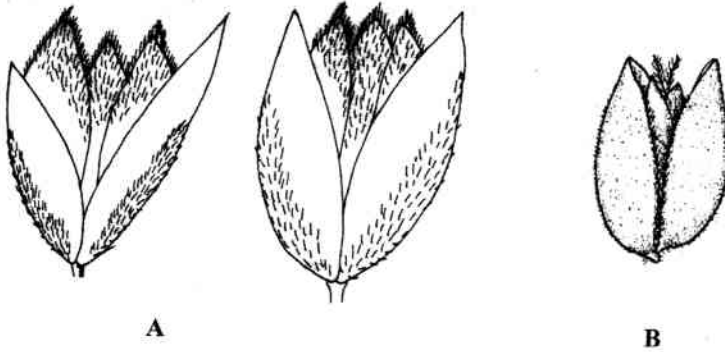


Fig. 3: The spikelet of *Hierochloë repens* (A) and *H. odorata* (B) (A: Penksza K. original, B: according to Hubbard)

county (Broșteni), Tulcea county (Babadag forest, Mănăstirei forest), București (near Tunar forest).

*Hierochloë repens* is found in South-east Europe and adjacent South-west Asia. It occurs in the former Czechoslovakia, Austria, Hungary, Romania, Bulgaria, South European Russia and South-west Asiatic Russia. The area of distribution can be characterized as eupontic. This species occurs in dry, sandy or gravelly biotopes, in steppes and pine forests but also as a weed in cultivated fields and vineyards. In Romania it was collected from old-fields, agricultural fields, vineyards and forests.

Occurrence of *Hierochloë australis* in Romania on the base of the corrected herbar material, for completing the previously known places: Alba county (Colțești), Cluj county (Făget forest, Baciului forest, between Cojocna and Călian, Măieruș, forest near Călian), Sibiu county (Sadului Valley).

On the base of our examinations we can conclude, that in Romania occur two species of the *Hierochloë* genus: *H. australis* and *H. repens* (the latter one being confused with or mentioned as a synonym of *H. odorata*).

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## CORECȚII ASUPRA DETERMINĂRII ȘI DATE PRIVIND DISTRIBUȚIA SPECIEI *HIEROCHLOË REPENS* (HOST) SIMONKAI ÎN ROMÂNIA

### (Rezumat)

Studiile laborioase asupra florei din Bazinul Carpatic din România și Ungaria susțin că numai două specii de *Hierochloë*: *H. australis* și *H. odorata* sunt răspândite în această zonă, în ciuda faptului, că Simonkai a semnalat anterior specia *H. repens* în Transilvania (România). Studii mai recente ale florei țării menționează *H. repens* ca fiind sinonimă speciei *H. odorata* auct. Contrar elaborărilor cu privire la flora din cele două țări, Weinmarck (1971) în lucrarea lui asupra speciilor de *Hierochloë* din Emisfera Nordică afirmă că în România și Ungaria trăiesc două specii din acest gen: *H. australis* și *H. repens*. Examinările morfologice ale lui Penksza și colab. (1999) au demonstrat că în Ungaria este răspândită *H. repens* nu *H. odorata*. În acest articol sunt redate rezultatele abordării acestei probleme în România, pe baza verificării materialului aflat în Herbarul Grădinii Botanice „Al. Borza” din Cluj Napoca. Redăm cheile de determinare, completate, pe baza cărora speciile *Hierochloë australis*, *H. repens* și *H. odorata* pot fi determinate și distinse cu siguranță. Speciile *Hierochloë repens* și *H. odorata* pot fi distinse pe baza lățimii frunzelor bazale (mai late la prima specie), perilor absenți (la *H. repens*) sau prezenți (la *H. odorata*) pe frunze, formeii paniculului (oval la prima și piramidal la a doua specie) și numărului spiculețelor (mai numeroase la prima specie), lungimii aristei de pe gluma superioară (mai scurtă la prima specie), lungimii paleilor (la prima specie mai scurte sau egale decât glumele celor două flori inferioare, sterile) etc. Pe baza materialului din herbar sunt prezentate și date privind distribuția speciei *Hierochloë repens* în România. Pe baza acestui studiu, putem afirma că în România există două specii din genul *Hierochloë*: *H. australis* și *H. repens*, în timp ce, *H. odorata* care este o specie aparte, nu este prezentă în flora țării.