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***ELEUSINE TRISTACHYA* (LAM.) LAM. (*POACEAE*) NEWCOMER IN
THE FLORA OF CROATIA**

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Eleusine tristachya (Lam.) Lam. is for the flora of Croatia a newly discovered species. It was discovered at two localities - (1) Dubci - Brela and (2) Ston on the Pelješac peninsula. *E. tristachya* is also a new species for the flora of the whole of the Balkan peninsula.

Key words: *Eleusine tristachya*, flora, Croatia

Introduction

As can be seen from many chorographic papers referring to the flora of Croatia (MARTINI 1989; TRINAJSTIĆ and ZI. PAVLETIĆ 1989; ŠEGULJA and KRGA 1990; PERICIN 1992; TOPIĆ 1994; TRINAJSTIĆ and ŠPANJOL 1994; DUBRAVEC 1995; TRINAJSTIĆ et al. 1995; TOPIĆ et al. 1996, 1997), to mention those published in the last ten years only, a number of new taxa of the vascular flora of the Republic of Croatia have been discovered. Among them, there are a large number of adventive species which have lately been spreading over Europe, and which, as well as in other European countries, have been discovered in Croatia.

One of such anthropochores is the species *Eleusine tristachya* (Lam.) Lam. which was discovered in autumn 1998, (leg. N. Jasprica) in two localities practically at the same time: (1) between Dubci and Brela, and (2) Ston on the

Pelješac peninsula (Fig. 1). As is usual in the case of the discovery of a new taxon for the flora of a certain region, it is necessary to give some information concerning the respective taxon, in this case *E. tristachya*.

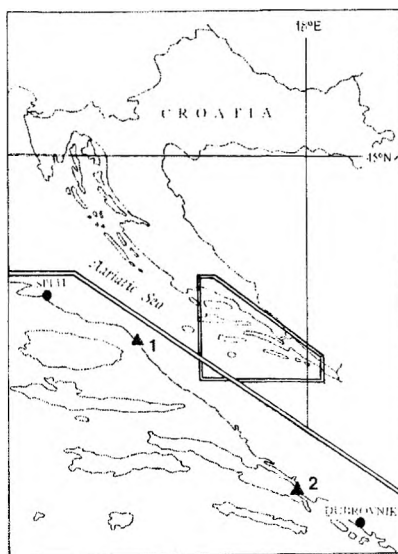


Fig. 1. Localities of *Eleusine tristachya* (Lam.) Lam. in Croatia: 1 -Dubci-Brela (43°24'N, 16°55'E); 2 -Ston (42°50'N, 17°41'E)

The genus *Eleusine* in Europe

The data referring to the number of species comprised by the genus *Eleusine* are various. ASCHERSON and GRAEBNER (1899) indicate 6 species of the genus, while MELCHIOR (1964) indicated 8 species, all of which originated in the tropical region of the ancient world. GASSER and VEGETTI (1997) mentioned 10 species and GASSER and VEGETTI (1997: 17) according to PHILLIPS (1972) and WILLIS (1973) write "*Eleusine* Gaertner is a predominantly African genus that includes 9–11 species, seven of which live in Africa. Only one, *E. tristachya* (Lam.) Lam., is a native of South America". The type-species of the genus *Eleusine* is *E. coracana* (L.) Gaertner.

In Europe, according to HANSEN (1980), the genus *Eleusine* is represented by 2 species (*E. indica*, *E. tristachya*). It is very interesting that POSPHICAL (1897) mentioned also *E. coracana* for Italy (Borgo S. Valentin in Friuli and Campo Marzio in Trieste), but this find has not been confirmed (POLDINI 1991) in the last hundred years.

In European flora, the most widespread is the species *E. indica*, which nowadays grows in warmer parts of Europe, while in Croatian flora it was reported for the first time some 50 years ago. It was first discovered by HODAK (1960) in some sites along the Croatian Littoral, but since then the number of newly dis-

covered localities has increased considerably. A review of all the localities of the species *E. indica* has been given recently by VREŠ (1996).

E. tristachya is much less frequent in Europe. As indicated by HANSEN (1980), it is known from the Azores, France, Spain and Italy. It is very interesting that for the flora of Italy, according to PIGNATTI (1982), *E. tristachya* was discovered in 1879 in only one place (Sora in Lazio and described as "*E. italica* Terr."). ASCHERSON and GRAEBNER (1899) indicate *E. tristachya* also for Germany, but this fact was not mentioned by HANSEN (1980).

With regard to the origin of the species *E. tristachya*, European authors (ASCHERSON and GRAEBNER 1899, HANSEN 1980) indicate its South American origin (Argentina, Uruguay), while the North American botanist HITCHCOCK (1950), indicated that *E. tristachya* originally comes from Cameroon in Africa, from where it was later spread to other continents, South America (Uruguay) in the first place. This was confirmed by HILU and JOHNSON (1997).

Results and Discussion

The species *Eleusine tristachya* (Fig. 2) has been discovered in the territory of the Republic of Croatia in the coastal part of Dalmatia, between Split and Dubrovnik, in two localities:

1. The Dubci – Brela area, along the Adriatic main road, where it grows together with many ruderal species and species in their secondary stands. The most important among them are *Heteropogon contortus* (L.) Beauv., *Hyparhenia hirta* (L.) Stapf., *Inula viscosa* (L.) Aiton, *Leontodon autumnalis* L., *Reichardia picroides* (L.) Roth, *Picris hieracioides* L.

2. In Ston, on moist, ruderal places near the road running along the Pelješac peninsula, together with typical ruderal plants – *Diplotaxis tenuifolia* L., *Setaria viridis* (L.) Beauv., *Capsella rubella* Reut., *Conyza canadensis* (L.) Cronq. and others.

It is very interesting that at the same time *E. tristachya* is a new species for the flora of the whole of the Balkan-peninsula (HAYEK 1933).

Although *Eleusine tristachya* has been known as a newcomer in European flora for more than a hundred years (ASCHERSON and GRAEBNER 1899, PIGNATTI 1980), it has not spread to any very great extent, compared to many other species, having being distributed by man, such as *Galinsoga parviflora*, or *Ambrosia artemisiifolia* which in many European countries, as well as in Croatia, have become dangerous weeds. In this respect, the representatives of the family *Asteraceae*, which disperse anemochorically, are especially aggressive. Grasses, as edificators of grassland vegetation have adapted mostly to spreading by animals. Interesting are observations by ASCHERSON and GRAEBNER (1899) who indicate its localities in Germany. Thus, in Hanover, *E. tristachya* was discovered as far back as in 1889 in the vicinity of a wool washing plant, and in Hamburg in 1894 near a wool combing plant. From the above, it may be concluded that *E. tristachya*, like many other grasses, is spread by means of sheep and wool.

As far as the localities in Croatia are concerned, it can be assumed with a high degree of probability that *E. tristachya* has been imported into Croatia only

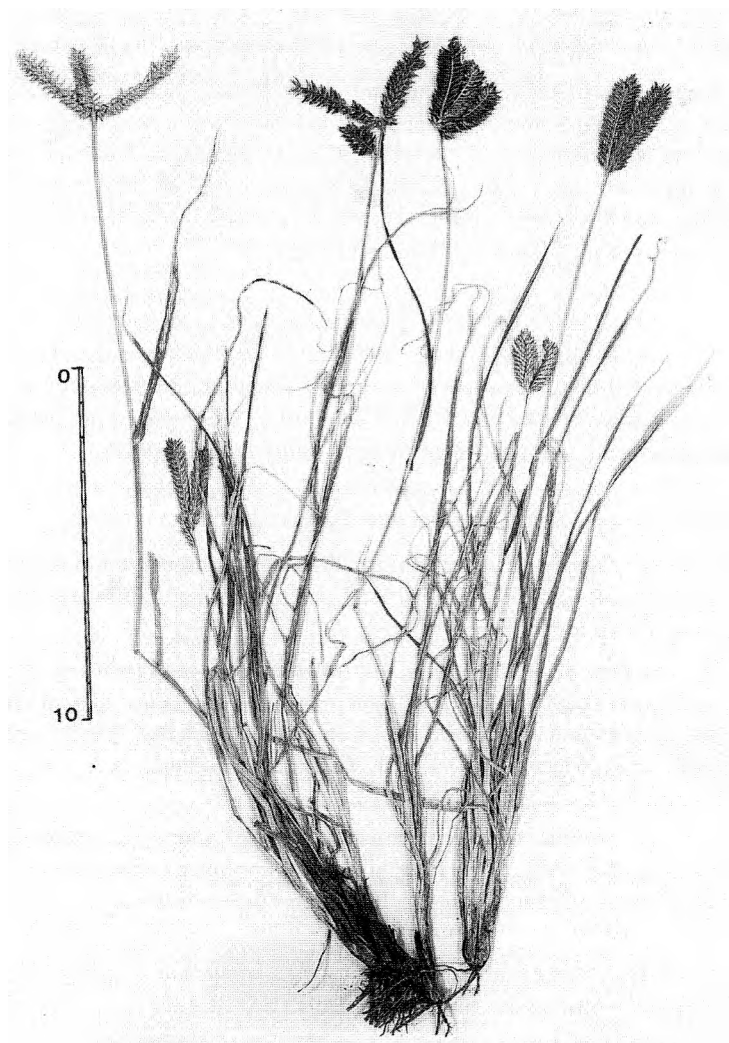


Fig. 2. Specimen of *Eleusine tristachya* (Lam.) Lam. from Ston (Leg. Dr. Nenad Jasprica). Bar denotes 10 cm.

recently, most likely through the activities of the many and various UN missions which transported a great variety of goods across and over Croatia. Time will show whether *E. tristachya* will become acclimatised in Croatian flora and whether the number of its localities both along the Croatian Littoral and in the inland regions of Croatia will increase, in the same way as *E. indica*.

Conclusion

With the localities of the species *Eleusine tristachya*, the flora of Croatia has become the richer for a newcomer, of secondary origin from South America. It has been discovered in two localities (Dubci – Brela, Ston) in Dalmatia directly

connected with roads, so it may be assumed that it has been imported quite recently through the activities of international transport.

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Sažetak

ELEUSINE TRISTACHYA (LAM.) LAM. (*POACEAE*) NOVA VRSTA U FLORI HRVATSKE

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Trava *Eleusine tristachya* (Lam.) Lam., nova je vrsta u hrvatskoj flori, kao i u flori Balkanskog poluotoka.

Eleusine tristachya (Lam.) Lam., *Tabl. Encycl. Méth. Bot.* 1: 203 (1792) = *Cynosurus tristachyus* Lam., *Dict. Encycl. Méth. Bot.* 2: 188 (1786) – basion. Busenasta je trajnica, s više stabljika, visokih 10–45 cm, uspravnih ili uzdignutih, golih. Plojka listova je 5–15 (–25) cm duga i 2–3 mm široka, linearna, gola. Ligula je blijeda, ± čekinjasto dlakava. Klasova ima (1–) 2–3 (–4), smještenih terminalno, debeli su i valjkasti, 2–4 cm dugi i do 1,5 cm široki, na vrhu završavaju klasićem. Klasići sadrže 5–10 cvjetova. Pljevice su nejednake, jajasto-suličaste, na vrhu šiljaste. Obuvenac je jajasto-suličast s vanjske strane izrazito hrptast.

Nalazišta u Hrvatskoj: Dubci – Brela, Ston. Leg. N. Jasprica (25. 9. 1998). Opća rasprostranjenost: Južna Amerika (Argentina, Urugvaj), Sjeverna Amerika (SAD), Europa (Francuska, Italija, Hrvatska, Njemačka, Španjolska, uključivši Azore).

Ključ za razlikovanje vrsta roda *Eleusine* u hrvatskoj flori:

1a) Klasova ima do 12, oni su tanki, do 12 cm dugi i 3–6 mm široki, raspoređeni duž gornjega dijela stabljike; klasići sadrže 3–8 cvjetova.

E. indica

1b) Klasova ima (1–) 2–3 (–4), oni su debeli, 2–4 cm dugi i oko 15 mm široki, skupljeni na vrhu stabljike; klasići sadrže 5–10 cvjetova.

E. tristachya