

ERIOCHLOA VILLOSA - A NEW ALIEN GRAMINACEAE SPECIES FOR ARAD COUNTY (ROMANIA)

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ABSTRACT. *Eriochloa villosa* are reported for the first time to flora of Arad County, Romania. The location of the species is in Western Romania, District Arad, at Vinga and Peregul Mic.

Keywords: *Eriochloa villosa*, new alien plant for Arad County, Romania, description, coronimes, cohabitants

INTRODUCTION

During the geo-botanical researches we take in the Western Plain, we discovered a new Graminaceae species for Arad County: *Eriochloa villosa* (Sm.) Griseb.

MATERIALS AND METHODS

The identification of this species was done using the data from the scientific literature (Clayton 1980; Clayton & Renvoize 1986; Shaw & Webster 1987; Tzvelev 1984). The herbarium materials examined and determined are deposited in the Bucharest University Herbarium [BUC], the Western University "Vasile Goldiș" Herbarium in Macea, the Babeș-Bolyai University Cluj Herbarium [CL], the Institute of Biology, Romanian Academy Herbarium [BUCA], the Carei Museum Herbarium. Herbarium abbreviations are those used by Holmgren et al. (1990). The nomenclature of the plants is mainly in accordance with Tutin et al. (1964-1993).

RESULTS AND DISCUSSIONS

Eriochloa Kunth is annual or perennial, cespitose, sometimes with short rhizomes or stolons. Culms 20-250 cm, erect or decumbent, usually with 2-5 nodes. Sheaths open; auricles absent; ligules membranous, ciliate. Inflorescences terminal, panicles of spike-like branches on elongate rachises; branches with many pedicellate, loosely appressed spikelets, terminating in a spikelet, without stiff bristles or flat bracts, spikelets in pairs, triplets, or solitary, often solitary distally when in pairs or triplets at the middle of the branches; pedicels terminating in a well-developed disk; disarticulation below the glume(s). Spikelets with 2 florets, lower florets usually sterile, upper florets bisexual. Lower glumes typically reduced (sometimes absent) and fused with the glabrous callus to form a cuplike structure; upper glumes lanceolate to ovate, glabrous or variously pubescent, 3-9-veined, unawned or awned; lower lemmas similar to the upper glumes in length, shape, venation, and pubescence, unawned; lower paleas absent to fully developed; upper lemmas lanceolate to ovate, indurate, rugose, dull, glabrous, rounded on the back, veins not pronounced, margins involute; anthers 3; lodicules 2, papery; styles with 2

branches, purple, plumose. Caryopses not longitudinally grooved; endosperm solid. $\times = 9$. Name from the Greek *erion*, wool, and *chloe*, grass, a reference to the usually pubescent pedicels and rachises.

The main diagnostic feature of *Eriochloa* is the beadlike swelling at the spikelet base. This is formed by the swollen lowest rachilla internode and adnate lower glume. The lanceolate, pointed spikelets are also characteristic.

There are approximately 84 species in this genus, grows in tropical, subtropical, and warm-temperate areas of the world.

In Europe only two species is indicated: *Eriochloa succincta* (Trin.) Kunth. and *E. villosa* (Thunb.) Kunth (Clayton 1980: 262).

Eriochloa villosa (Thunb.) Kunth, *Révis. Gram.* 1: 30 (1829), Tribe **Panicaceae** R. Br. **Synonyms:** *Helopus villosus* (Thunb.) Nees. ex Steud.; *Paspalum distichum* Houtt. (non L.) (Shaw & Webster 1987); *Paspalum villosum* Thunb. [basionym] (Darbyshire et al. 2003). **Common names** (E): Woolly cup grass, woolly cupgrass, hairy cupgrass, Chinese cupgrass (Darbyshire et al. 2003). (F): Ériochloé velue (Darbyshire et al. 2003).

Annual. Culms erect or geniculately ascending, branching, 30-100 cm tall, nodes pubescent. Leaf sheaths loose, glabrous, pubescent or ciliate along one margin; leaf blades broadly linear, 5-25 \times 0.5-1.5 cm, pubescent, margins firm, wavy, scaberulous, apex acute. Ligules 0.5-1 mm, a row of hairs. Panicles 3-16 cm long, 1-3 cm wide; rachises villous; branches 2-8, 20-70 mm long, 0.8-1.1 mm wide, velutinous, sometimes winged, with 11-24 solitary spikelets (occasionally paired proximally); pedicels 0.5-1 mm, densely villous below, often with long hairs intermixed with the short hairs, apices with more than 12 hairs of 1.5-2.5 mm. Spikelets 4.5-5(-6) mm long, 2-2.5 mm wide, ovate to elliptic, acute, basal swelling ca. 0.5 mm; free portion of lower glume a ca. 0.2 mm truncate frill; upper glumes equaling the lower lemmas, ovate to elliptic, pubescent, 5-veined; lower lemmas 3.4-5 mm long, 2-2.5 mm wide, 5-veined, acute to apiculate, unawned; lower paleas absent; upper lemmas 3.5-5 mm, ovate to elliptic, acute to apiculate. $2n = 54$.

We found the plant in the South of Crisana (AR), and in the North of Banat (AR), in the following localities: Vinga NE 4 km, Valea Pârful Apa Mare, ad ripam, segetalis in *Zeetum maydis*, rarius in pratis, 46°02'30.553"N, 21°14'27.317"E, alt 125 m, 14 VIII 2008, A. Ardelean, C. Karacsonyi & G. Negrean (GN: 11.193) [BUC, BUCA, CL, MACEA, Herb. Mus. Carei]. In Vinga the plant was found under a steppe coast with many rare elements for this part of the country: *Brachypodium pinnatum*, *Carlina intermedia*, *Chamaecytisus austriacus*, *Dictamnus albus*, *Euphorbia nicaeensis*, *Festuca rupicola*, *Festuca valesiaca*, *Inula hirta*, *Lathyrus latifolius*, *Linaria angustissima*, *Nonea atra*, *Rosa gallica*, *Seseli pallasii* etc., in natural habitats and in a neighboring corn culture. In the corn culture were also lots of weeds present: *Amaranthus retroflexus*, *Artemisia vulgaris*, *Cirsium arvense*, *Datura stramonium*, *Digitaria sanguinalis*, *Echinochloa crus-gallii*, *Elymus repens*, *Euphorbia esula orientalis*, *Falcaria vulgaris*, *Hibiscus trionum*, *Panicum capillare*, *Portulaca oleracea oleracea*, *Rubus caesius*, *Setaria pumila*, *Setaria verticillata*, *Sonchus oleraceus*, *Sorghum halepense*, *Xanthium italicum* etc. (to look for the survey at KK). We intend to propose the cost mentioned above to be designated as nature reserve for the many interesting plant species we found here.

We discovered the plant north from the Mures River, in Peregul Mic SW, at the limit of a corn culture: Peregul Mic SW, ad marginem culturae (*Zea mays* L.), 46°14'31.814"N, 20°55'34.384"E, alt.110 m, 17 VIII 2008, G. Negrean, C. Karacsonyi & A. Ardelean (11.365), with many weeds: *Arctium tomentosum*, *Berteroa incana*, *Carduus acanthoides*, *Dipsacus laciniatus*, *Erigeron annuus annuus*, *Hypericum perforatum*, *Lactuca serriola*, *Picris hieracioides* s. 1., *Salvia nemorosa nemorosa*, *Sambucus ebulus*, *Tanacetum vulgare*, *Urtica dioica*, *Verbascum nigrum austriacum* etc.

CONCLUSIONS

The plant is alien for Romania. Mean while in Peregul Mic the plant is only segetal (mostly located at the limit of the corn culture), in Vinga the plant grew also in the natural pasture, otherwise very interesting. For the moment, the plant don't seem to have an invasive characteristic, but we can not predict anything for the future. More exemplars were identified south from Mures (few hundred), and north from Mures we identified only a few tens of individuals. The situation can have a cause in the thermal gradient, the natural spreading area of the plant indicating a termophilic habit.

The plant should be monitored. Also, more areas should be studied to understand the species chorology.

REFERENCES

- Ardelean A. 2006. Flora și vegetația județului Arad. București: Edit. Acad. Române, 508 pp. ISBN 973-27-1315-1.
- Clayton W. D. 1980. *Eriochloa* Kunth. P. 262. In: T. G. TUTIN & al. (eds), *Flora Europaea*. Vol. 5. Alismataceae to Orchidaceae (Monocotyledones). Cambridge: Cambridge University Press, i-xxxvi, 1-439 pp. + 5 maps.
- Clayton W. D. & Renvoize S. A. 1986. *Genera Graminum, Grasses of the World*. Royal Botanic Gardens, Kew. London. 389 pp.
- Darbyshire S. J., Wilson C. E. & Allison K. 2003. *The Biology of Invasive Alien Plants in Canada*. 1. *Eriochloa villosa* (Thunb.) Kunth. *Can. J. Pl. Sci.* 83: 987-999.
- Holmgren Patricia K., Holmgren N.H. & Barnett L.C. 1990. *Index Herbariorum, Part I: The Herbaria of the World*. 8th Ed. *Regnum Veg.* 120: 1-693.
- Koyama T. 1987. *Grasses of Japan and its Neighboring Regions. An Identification Manual*. Kodansha Ltd., Tokyo, Japan. 570 pp.
- Shaw R. B. & Webster R. D. 1987. The genus *Eriochloa* (Poaceae: Paniceae) in North and Central America. *Sida* 12(1): 165-207.
- Tsvelev N. N. 1984. *Grasses of the Soviet Union*. Nauka Publishers, Leningrad. (Translated from Russian). 1196 pp.
- Tutin T.G., Burges N.A., Chater A.O., Edmondson J.R., Heywood V.H., Moore D.M., Valentine D.H., Walters S.M. & Webb D.A., 1996. *Flora Europaea*. 2nd ed., 1993, reprinted 1996. Vol. 1. Psilotaceae to Platanaceae. Cambridge: Cambridge University Press xlvi, 581 pp., illus. ISBN 0-521-41007-X (HB).
- Tutin T.G., Heywood V.H., Burges N.A., Moore D.M., Valentine D.H., Walters S.M. & Webb D. A. (eds). 1964-1980. *Flora Europaea*. Vols. 1-5. Cambridge: Cambridge University Press.