

THE RECORDING OF A NEW ADVENTIVE SPECIES - *Amaranthus quitensis* Kunth - IN THE ROMANIAN FLORA

COSTEA MIHAI

Amaranthus quitensis Kunth in Humboldt et al., Nov. Gen. Sp. 2, ed. folio: 156, 1918.

Amaranthus retroflexus subsp. *quitensis* (Kunth) O. Bolos & Vigo in Butll. Inst. Catalana Hist. Nat. 38 : 39, 1974.

Amaranthus hybridus var. *quitensis* (Kunth) Covas in Darwiniana 5 : 329 - 368., 1941.

Annual plant up to 1 - 1, 5m, usually erect, stem sparsely pubescent to glabrous. Leaves rhombic-ovate. Very characteristic is the inflorescence, terminal, large, with numerous lateral branches. Bracteoles slender, 3 - 4 mm, long $1 \frac{1}{3}$ - $1 \frac{1}{2}$ times as long as the perigon. Female flowers with 5 tepals about 2 mm. long narrow oblong to spatulate with the midrib continued into the mucro. In fruit, the tepals are \pm recurved (fig. 1). Male flower have a characteristic pale brownish glistening sheen not observed in the related species. The fruit is dehiscent, shorter, than the tepals (rare as long as the perigon). The seeds are round, 1,1 mm. in diameter, dark brown, shiny. The place where hilum stands is like an prominence in the outline of seed (fig. 2) $2n = 34$ chromosomes (14).

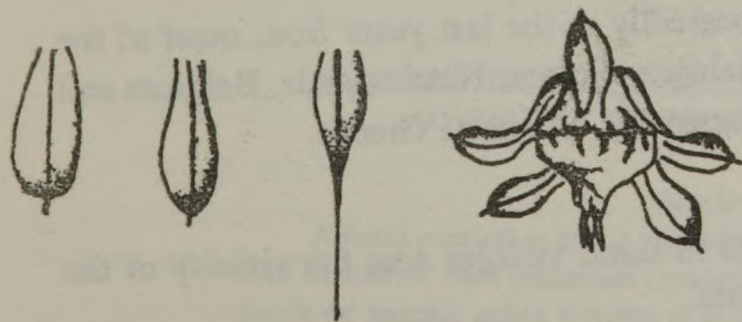


Fig. 1 - Female flower; bractlet; tepals variability; 8 x.



Fig. 2 - The seed; 25 x

Most modern authors consider *A. quitensis* to be the wild progenitor for *A. caudatus* L., accepting both of them as separate species. Greuter (8, 9) deviates from this treatment making no distinction at specific level between the weedy taxa and the corresponding cultigens. In this respect, he is using the oldest name, *A. caudatus* L. to include also *A. quitensis*. If in others situation such a treatment seems to be justified, in this case is rather discutible. The difference between the two can be emphasized thus:

1a. Tepals distinctly overlapping. Terminal inflorescence tail-like pendulous, reddish or purplish. *A. caudatus*.

1b. Tepals not overlapping. Inflorescence not pendent, with many, lateral, patent branches, green coloured. *A. quitensis*

Regarding the tepal form *A. quitensis* is very much alike *A. retroflexus* L., Bolos. & Vigo subordinated the first as a subspecies of the second. The differences between the two in our opinion nevertheless sustain them as distinct species:

1a. Stem densely pubescent. The perigon longer than the fruit. Inflorescence usually scarcely ramified, short and dense. *A. retroflexus*

1b. Stem sparsely pubescent to glabrous. The perigon shorter than the fruit. Inflorescence very ramified, large with numerous lateral branches. *A. quitensis*

If compare the ratio between the length of tepals and the length of the fruit, *A. quitensis* is resembling the species of the *A. hybridus* agg. and especially *A. hybridus* L. sensu Flora Europaea 2-end ed.

Besides the important difference in tepals shape between the two, some modern cytological studies showed that the pollen viability of the *A. hybridus* ($2n = 32$) *A. quitensis* ($2n = 32$) hybrid is much lower than that observed in its parents. (14) This results suggest that there is a degree of reproductive isolation and consequently they are not co-specific as was suggested by some authors. (16).

Origin and general occurrence

A. quitensis is a native of South America, both in mountain of northwest and at lower elevation in temperate south, being also present in Galapagos. After Sauer (15, 16) it has become the commonest weed *Amaranth* in South America.

In Europe it was signaled repeatedly in the last years from most of the countries: Portugal, Acores, Isles Baleares, France, Netherlands, Belgium and Luxembourg, Germany, Austria, Denmark, Hungary, Greece.

Occurrence in Romania

We have identified this species in some villages near the vicinity of the Ploiești: Puchenii Mari and Pietrosani.

Ecology

In Romania grows as a weed especially in irrigated but rather neglected house garden vegetable crops. We did not observe it as a ruderal. It is an eutroph, nitrophyll and termophyll species. In the climatic condition of the localities previously mentioned it flowers and fruits the last comparatively with the others' species of the genus. In this respect the flowering is beginning in the August and the fruiting in the late September. This extremely high necessities for warm will constitute probably a limitative factor in its spreading.

BIBLIOGRAPHY

1. AELLEN P. - *Amaranthus* in Hegi G., *Illustrierte Flora von Mitteleuropa* 2, Aufl. 3, 2 : 465 - 515, 1959.
2. - ... - - *Amaranthus* in *Flora Europaea* ed. 1 : 109 - 110; 1964.
3. AKEROYD J. R. - *Amaranthus* in *Flora Europaea* ed. 2 : 130 - 132; 1993.
4. BRENNAN J. P. M. - *Amaranthus* in Britain. *Watsonia* 4 : 261 - 280; 1961.
5. COONS MARY PATRICIA - Relationships of *Amaranthus caudatus*. *Economic Botany* 36(2) : 129 - 14; 1982.
6. COVAS G. - Las *Amaranthaceas Bonarienses*. *Darwiniana* 5 : 329 - 368; 1941.
7. FLORISTISCHE RUNDBRIEFE Beiheft 3. Standardliste der Farn und Blütenflazen der Bundesrepublik Deutschland; 1993.
8. GREUTER W. - Med - Checklist Notulae 3. *Willdenowia* 11 : 3 - 43; 1981
9. & al. - Med. Checklist 1; 1984
10. HUGIN G. - Die Verbreitung von *Amaranthus* Arten in der sudlichen und mittleren Oberrheinebene sowie einigen angrenzenden Gebieten. *Phytocenologia* 14(3); 289 - 379; 1986.
11. - ... - - Einige Bemerkungen zu wenig bekannten *Amaranthus* - Sippen Mitteleuropas. *Willdenowia* 16 : 453 - 478; 1987.
12. JALAS J. & SUOMINEN J. - *Atlas Florae Europaeae* 5 : 90 - 98; 1980.
13. LAMBINON J. & al. - Nouvelle Flore de la Belgique, du Grand - Duche de Luxembourg, du Nord de la France et des Regions voisines. 158 - 164; 1992.
14. QUERIDOS MARGARIDA - Estudios citotaxonomicos em *Amaranthus* en Portugal. *Lazarroa* 11 : 9 - 17; 1989.
15. SAUER J. D. - The grain amaranths: A survey of their history and classification. *Ann. Missouri Bot. Gard.* 37 : 561 - 632; 1950.
16. - ... - - The grain amaranths and their relatives: A revised taxonomic and geographic survey. *Ann. Missouri Bot. Gard.* 54 : 103 - 137; 1967.
17. STACE C. A - *New Flora of British Isles*. 186 190; 1991.
18. THELLUNG A. - *Amaranthus* in Ascherson P. & Graebner P. ; *Synopsis der Mitteleuropaischen Flora* 5 : 225 - 356; 1914.

AMARANTHUS QUITENSIS KUNTH - O NOUĂ SPECIE ADVENTIVĂ PENTRU FLORA ROMÂNIEI

Sumar

Autorul prezintă o specie adventivă necunoscută până în prezent în flora României. Sunt prezentate caracteristicile distinctive care separă această specie de speciile strâns înrudite și se oferă unele informații referitoare la răspândirea și ecologia ei.