

*The Genus **Amaranthus** in the Canary Islands*

Mainly Collected by Norwegian Botanists

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R e s u m e n

Las especies de **Amaranthus** (Amarantáceas) en las Islas Canarias: Se menciona siete especies (**A. albus**, **A. deflexus**, **A. gracilis**, **A. graecizans** var. **silvestris**, **A. hybridus**, **A. lividus** y **A. muricatus**), y se discute la taxonomía, el origen y la distribución local de estas especies.

Una octava especie — **A. quitensis** — se cita en una nota adicional, y se menciona, además, la presencia posible de **A. retroflexus** en las islas.

During a short excursion to Tenerife it was discovered that there were represented more species of the genus *Amaranthus* than mentioned by Lid (1967). When determining my own collections (kept in BG), I also revised those made by Lid, Rostad and Sunding (kept in O). On my request Prof. T. Ouren and Dr. A. Danielsen collected *Amaranthus*, especially for this paper (kept in BG). It is hoped that these collections are representative, as I have not tried, to begin with, to trace the widely scattered old and new collections from the islands. I will, however, be most thankful if students of the Canarian flora send me for identification old or new collections, or information on them.

The genus is on the Canary Islands, as already mentioned by Lems (1960), highly in need of a revision in light of modern studies. Old works are not reliable as the difficult taxonomy of the genus has led to much misunderstanding and intricate nomenclature. It is hoped that this contribution may be of some help and will stimulate further work.

Many species of the genus are distributed widely by man, and the species found on the islands make no exception. They are growing near harbours, in and along the streets, as weeds in potato-fields, banana-plantations a.s.o. Although sometimes found outside areas directly influenced by man, e.g. barrancos, the herbaria specimens are all from altitudes where agriculture is of importance.

E n u m e r a t i o n o f s p e c i e s

Amaranthus albus L.

Taxonomy: Characteristic species recognized by its pale much branched stems, spatulate leaves, spiny bracteoles twice as long as the perianth and transversely dehiscent fruits.

Distribution: Very rare. Only one record from Gran Canaria: Atalaya (Kunkel 1967 b). One specimen is kept in herb. O. (!).

Origin: North America, but naturalized in the Mediterranean-area.

Amaranthus deflexus L.

Taxonomy: Easily identified by the characteristic green-nerved fruits (ill. in Aellen 1959). They have a swollen appearance and the seed is much smaller than the fruit.

Distribution: Rare. A few collections from Tenerife. Recorded by Kunkel (1967 a) from Gran Canaria as new to the Canary Islands. Probably a recent introduction.

Origin: South America, but widely distributed e.g. in the Mediterranean-area (see Aellen 1959).

Amaranthus gracilis Desf.

Taxonomy: It has been confused with forms of *A. lividus*. They are generally easy to separate (see diagram below), see next page).

A. lividus varies a great deal genetically and the complex approaches *A. gracilis* (see Thellung op. cit.: 320). There are forms with triangular leaves, producing prominent

Species	<i>A. gracilis</i>	<i>A. lividus</i>
Growth-form	erect	+ procumbent
Inflorescens	Mostly with a number of terminal "spikes"	Mostly axillary, often with one terminal "spike"
Fruits	Small (less than 1,5 mm) Spherical with a distinct, coarse beak. Young ones with numerous, distinct green veins. Old ones strongly muricate.	Larger (up to 2,5 mm) Elliptical, compressed from the sides, no distinct beak. With only two green veins along the margins. Old ones smooth or somewhat wrinkled.

terminal "spikes"; they are, however, never as densely flowered as in *A. gracilis*. *A. gracilis* has like *A. lividus* a good deal of phenotypes. Especially one drought form is similar to certain forms of *A. lividus*. They are best separated by the fruits. The stage of development of the fruits should always be taken into consideration. Of course young fruits of *A. gracilis* are smooth, but they have very distinct green veins, lacking on those of *A. lividus* (with exception of the marginal ones). Even at an early stage the different form (see ill. in Aellen 1959: 473) can be of some help. Fully developed fruits of *A. lividus* are sometimes not smooth. They are however never as regularly muricate as those of *A. gracilis*.

Distribution: Rather common on Gran Canaria and Tenerife. A few collections from Gomera and La Palma. Already mentioned by Pitard et Proust (1908).

Origin: Uncertain, probably South America (see Thellung op. cit.). Widely distributed in tropical and subtropical areas (see Aellen op. cit.).

Amaranthus graecizans L. var. *silvestris* (Vill.) Asch.

Taxonomy: In recent collections from the islands it has been confused with forms of *A. lividus* L. The leaves of *A. graecizans* var. *silvestris* are generally much more rhombic (var. *graecizans*, hitherto not recognized on the islands, has lineate leaves), and above all the fruits are of another form dehiscing transversly, while the fruits of *A. lividus* is indehiscent or deshiscent irregularly.

Distribution: Rare. Two collections from Tenerife: Beo Grande (J. Lid) and La Orotava (T. Ouren). Kunkel (1968) has published the species as new to the Canary Islands, based on an old collection from Gran Canaria by Gelert. Pitard et Proust (1908) gives however one record from Lanzarote of *A. Sylvestris* Desf. which might refer to *A. graecizans* var. *silvestris*, as do *A. angustifolius* Lam. *nanus* Thell. mentioned from Tenerife by Thellung (ou. cit.: 308) on the authority of Bourgeau.

Note that some botanists, especially American, use the name *A. graecizans* L. for *A. albus* L. (for the reasons see Thellung op. cit.: 285-287). The record of Kunkel (op. cit.) is given on the authority of Mr. A. Hansen, Copenhagen, who uses these two names in the same way as I do (see Hansen et Pedersen 1967).

Origin: European.

A. hybridus L. coll.

Taxonomy: Extremely polymorphic, varying in a bewildering manner. Besides variation in general growth-form and leaf-form and colour, there are several inflorescens types: long unbranched; one long spicate terminal with several small branches at the base; a number of rather equally long spikes; dense, branched ones a.s.o., all types varying in colour from deep red to brownish and green. Varying lengths of the bracteols compared with the perianth are found in all types. I have here as in the Norwegian material examined (Jorgensen 1970) found it impossible at present to draw decisive limits within the complex. Several attempts have been made (e.g. Thellung op.cit.), but none of them are fully satisfactory, and I have found it best, although I am fully aware of its indirect character, to abstain from any classification. One type should, however, be mentioned especially here. Prof. Ouren collected at San Felipe, Puerto de la Cruz, Tenerife the so called var. *pseudoretroflexus* (Thell.) Thell. This is in habit very like *A. retroflexus* L., but differs especially in the form of the perianth-segments which are narrowly ovate, while they are spatulate in *A. retroflexus* (see e.g. Jorgensen op.cit.).

Distribution: Common on Gran Canaria, Gomera, La Palma and Tenerife.

Origin: Probably tropical America, but now cosmopolitan (see Thellung op. cit.).

Amaranthus lividus L.

Taxonomy: Variable, mostly represented by var. *ascendens* (Lois.) Thell. For further taxonomical discussion see *A. gracilis*.

Distribution: The commonest species with a number of collections from Gran Canaria, Gomera, La Palma and Tenerife.

Origin: Possibly European (see Thellung op. cit.).

Amaranthus muricatus (Moq.) Gillies.

Taxonomy: Easily identified by its lineate leaves and strongly muricate, indehiscent fruits.

Distribution: Published from Gran Canaria by Kunkel (1967b). There are many collections from Gran Canaria where it seems partly to be rather common, especially in the Las Palmas district. Also one collection from Fuerteventura (L. Boulos, O.) and one from Tenerife.

Origin: South America. Naturalized in Portugal, Spain (Aellen 1964) and Morocco (Maire 1962).

S u m m a r y

In recent collections from the Canary Islands the following seven species of the genus *Amaranthus* are found: *A. albus*, *A. deflexus*, *A. gracilis*, *A. graecizans* var. *silvestris*, *A. hybridus* Coll., *A. lividus* (mainly var. *ascendens*), *A. muricatus*. They are all introduced to the islands by man. Their origin, taxonomy and distribution on the islands are discussed.

Additional note: After the manuscript was sent to the editor, Cuad. Bot. Canar. IX appeared. There A. Hansen gives more records of *A. graecizans* and *A. muricatus*, from Tenerife. He also records one new species to the Canary Islands: *A. quitensis*. A ninth species may also be present, *A. retroflexus*. It is recorded by G. Kunkel, from Gran Cana-

ria, but since I have not been able to examine his specimens, and confusion — especially with *A. hybridus* var. *pseudoretroflexus* — is possible, it is best excluded until certain specimens have been seen.

L i t e r a t u r e :

- AELLEN, P., 1959: Amaranthaceae, in Hegi: *Illustrierte Flora von Mitteleuropa* ed. 2, Bd II, 2: 461:532. München.
- 1964; Amaranthus, in *Flora Europea* I: 109-110. Cambridge.
- HANSEN, A et PEDERSEN, A. 1968: Chenopodiaceae og Amaranthaceae udbredelse i Danmark. *Bot. Tidsskr.* 63: 205-288.
- JØRGENSEN, P. M., 1970: Noen amerikanske adventivplanter in vår flora. *Blyttia* 28: 25-32.
- KUNKEL, G. 1967 a: Plantas vasculares nuevas para la flora de Gran Canaria. *Cuad. Bot.* I: 3-25.
- 1967 b: Plantas vasculares: nuevas adiciones para de Gran Canaria. *Cuad. Bot.* II: 23-37.
- 1968: Notas Misceláneas. *Cuad. Bot.* IV: 1-7.
- LEMS, K. 1960: Floristic botany of the Canary Island. *Sarracenia* 5: 1-94.
- LID., J. (1967) 1968: Contributions to the flora of the Canary Islands. *Skr. norske Vidensk. Akad. Oslo I. Mat. - Nat. Kl. Ny.* s. 23.
- MAIRE, R., 1968: *Flore de l'Afrique du Nord*. Vol. VIII. Paris.
- PITARD, J. et PROUST, L., 1908: *Les Iles Canaries. Flore de l'archipel*. Paris.
- THELLUNG, A. 1914-19: Amaranthus, in Ascherson et Graebner: *Synopsis der Mittel-europäischen Flora* 5,1: 225-357. Leipzig.