

The Cultivated Okra in West Africa: Collecting Missions in Guinea

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Introduction

Okra is an annual crop, cultivated for its young, fleshy pods and sometimes for its leaves, in tropical and sub-tropical parts of the world. In West Africa, 2 major species are grown in a mixed cropping system. One of these is the classical okra, Abelmoschus esculentus (L.) Moench, characterized by its 8-12 epicalyx segments, which are linear to lanceolate in form, acute, 5-18 mm long and 1-2.5 mm wide. The other species, which remains unclassified, has only 5-10 epicalyx segments, these being oval to oblong 5-13 mm long and 10-35 mm wide, and is temporarily called the "West African taxon"

Similarities on the one hand with A. esculentus (the fruits and usage) and on the other hand with A. manihot (epicalyx segments) often lead to confusion in the literature. A. esculentus is cultivated over a wide climatic range, whilst the "West African taxon" is actually supposed to be closely related to West Africa. Traditionally, farmers make distinctions between the 2 species on the basis of the cycle duration (Hamon and Charrier, 1983). Thus, A. esculentus is called "okra for the rainy season" and the "West African taxon" is named "okra for the dry season". In this paper new enquiries made by 2 collecting missions in Guinea are presented. They were sponsored by the IBPGR and Institut Francais de Recherche Scientifique pour le Developpement en Cooperation (ORSTOM).

Expeditions and climate

The first expedition (November-December 1982) was especially concerned with Oryza species and the second (January-February 1983) with cereals; samples of okra were collected during both missions. Both expeditions frequently covered the same area in round trips between Kankan and Mamou. The Oryza group visited the south and southwest part of the country (Kindia, Conakry, Boke), whereas the cereals mission covered the northern part, in a circular route (Labe, Mali, Koundara, Telimele and Dalaba). The Guinean climate like that of many countries located near the Guinean Gulf, has a gradient ranging from rain forest to Sudanian savannah. A great decrease in the mean annual rainfall is observed from Conakry (4000 mm) to the Senegal and Malian borders (less than 1000 mm). Often regular, this gradient is altered in Guinea by the Fouta Djallon mountains.

Collected samples

(a) Geographic distribution: A total of 190 samples was collected in 89 villages. Collecting points are recorded in Fig. 1. Symbols are utilized for each of the 2 species: a white star is used within A. esculentus to distinguish the northern type (Fig. 3c) and the West African taxon symbol, when encircled, indicates the samples which have russet hair on the seed surface.

It is possible to classify 80% of the

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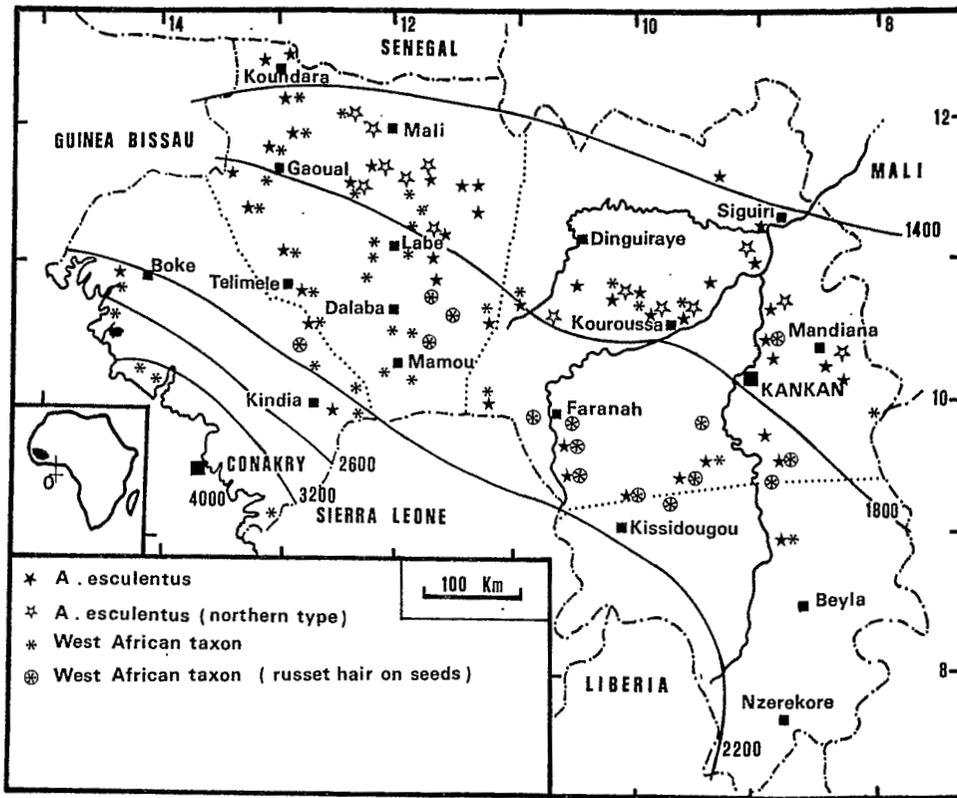


Fig. 1. Geographic distribution of okra samples collected by ORSTOM-IBPGR in Guinea

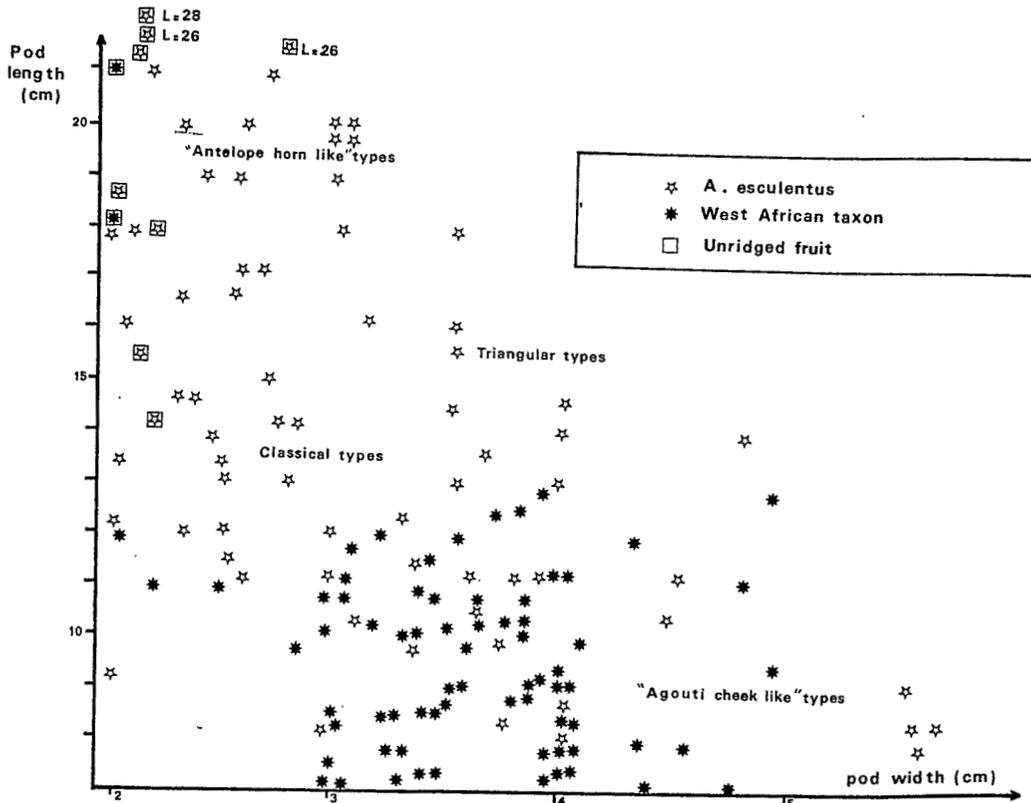


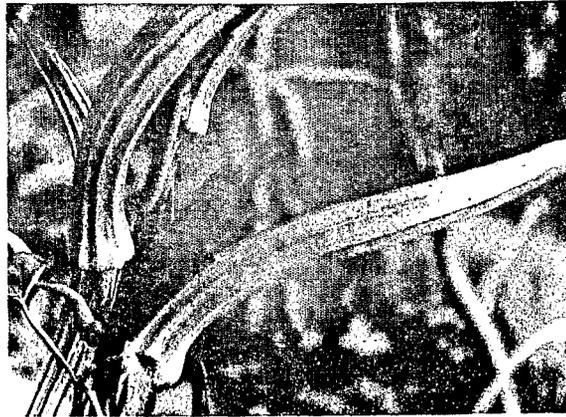
Fig. 2. A diagram based upon collection data on pod size (length by width), showing the greater polymorphism of *A. esculentus* fruits

total according to fruit shape and aspect. Results obtained after flowering give the following final breakdown: A. esculentus (L.) Moench (91); West African taxon (99).

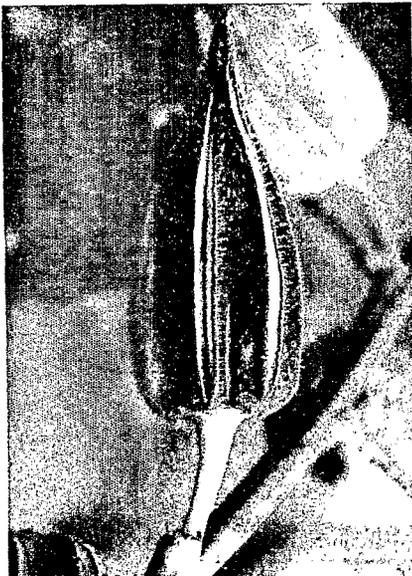
(b) Fruit shapes: All but 4 of the samples were fruits. A diagram built up from collection data is shown in Fig. 2. A separate symbol is used to distinguish between the 2 species. The greater polymorphism of A. esculentus fruits can be seen at a glance. A regular decrease from "Antelope horn like" types (Fig. 3a) to "agouti cheek like" types (Fig. 3b) was observed. Fruit of the "West African

taxon" are tapered or globular (Fig. 3d) and rarely in excess of 13 cm long; they are more homogenous. Only 2 exceptions are recorded; fruits from these 2 samples were 18 to 21 cm long and unribbed. Similarly, it was noted that the longer A. esculentus fruits are also unribbed. Fruits with this latter characteristic were predominant around Kouroussa.

(c) Seed and fruit pilosity: Okra seeds are often glabrous or have scattered short, simple hairs. In Guinea, special attention is paid to 23 West African taxon collections which showed dense russet hairs on seed surfaces. Most of them were



Figs. 3a-3e. Fruit types with "Clemson spineless" as check sample (a-d). (Clockwise from above: a = antelope horn like, b = agouti cheek like, c = northern type, d = West African taxon with globular shape and e = West African taxon fruit with pricking hairs)



found in a triangle delimited by Faranah, Kissidougou and Mandiana, and 4 around Dalaba (Fig. 1). Also of special interest are 9 samples of the West African taxon collected on the Kindia-Mali axis. Their seeds are glabrous, but there are pricking hairs on the external fruit (Fig. 3e).

Conclusion

About 200 samples of okra have been collected in Guinea. They are distributed alike among the classical okra A. esculentus and the undescribed West African taxon.

These 2 species were often collected in the same village as observed by Hamon and Charrier (1983) in Togo and Benin. Fruits of A. esculentus are very polymorphic, those of the West African taxon are more homogeneous with a globular

or tapered shape. The usual very low frequency of hairy seeds for this latter species increases to a significant level in Guinea. According to recent collecting missions in West Africa, it is now obvious that the West African taxon is grown at least from Guinea to Cameroon. Samples were collected in the following countries: Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Ghana, Guinea Conakry, Liberia, Nigeria, Togo and Zaire ^{1/}. Its geographical distribution certainly goes beyond strictly West Africa; Tisserand (1950) and Hauman (1963) have described varieties of A. esculentus, which certainly belong to the new species, in the Central African Republic and Zaire.

Samples collected in Guinea have been added to collections deposited at ORSTOM in the Côte d'Ivoire, where they are being increased and evaluated.

^{1/} More details are available in an article in FAO/IBPGR Plant Genetic Resources Newsletter, 61:26-28

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RESUME

Institut Français de Recherche Scientifique pour le Développement en Coopération (ORSTOM), a organisé avec le soutien du CIRP, deux expéditions pour la collecte de gombo en Afrique de l'Ouest en 1982 et 1983. Au total, 190 échantillons ont été réunis, dont 91 ont pu être identifiés comme Abelmoschus esculentus L., et 99 comme Taxon Ouest Africain.

RESUMEN

Institut Français de Recherche Scientifique pour le Développement en Coopération (ORSTOM), con el apoyo del CIRP, llevó a cabo dos expediciones para la recolección de gombo en el África occidental en 1982 y 1983. Se recogió un total de 190 muestras, de las que 91 se identificaron como Abelmoschus esculentus L., y los otros 99 fueron clasificados como Taxon África Occidental.