

African Yam Bean and the Reawakened 25

THE YAM BEAN IS AN EXCEPTIONAL LEGUME. Unlike other legumes, the African Yam Bean is not cultivated for its pulses but instead for its large, abnormally shaped tuberous root. It is traditionally consumed fresh, in salads, lightly marinated, or dried and ground into flour for baking desserts. The seeds are also eaten, but only before they mature, after which they become poisonous. This feature probably contributes to the low popularity of this crop, but yam bean still has a lot to offer the world. That's why scientists are researching cooking treatments, value addition and genetic variability to select the most desirable traits of the yam bean. These efforts are slowly leading to the return of yam bean, which could provide an important source of protein in diets.



AFRICAN YAM BEAN

Sphenostylis Stenocarpa

Origin: Tropical West and Central Africa
Grown in Southern and Eastern Africa
A legume eaten for its nutrient rich starchy root instead of its beans

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BOTANY

The African yam bean (*Sphenostylis stenocarpa* (Hochst. ex A. Rich.) Harms) is a perennial climbing bush, 1-3 m high, generally grown as an annual. Its leaves are trifoliate with oval leaflets (2.7 to 13 cm long and 0.2 to 5.5 cm broad). *Sphenostylis stenocarpa* is cultivated for its edible tubers, which look like elongated sweet potatoes, and for its seeds, which are contained in hard and tough, 20-30 long pods. It is mainly used as food but can be used to feed animals. *Sphenostylis stenocarpa* is native to tropical west and central Africa and is cultivated in southern and eastern Africa (Ecoport, 2009) The plant flowers after 90 days and the pods mature in 140 to 210 days. The tubers are ready to harvest 150 to 240 days after sowing (Ecocrop).

CULINARY USE

Yam beans are primarily cooked for their tubers, which can be cooked like potatoes: boiled, baked, fried (Human Development Library). The tubers can also be used in stews and common West African dishes. Their versatility also allows for 1:1 substitution to potato-based dishes worldwide. The seeds may also be eaten, but should be thoroughly soaked before cooking. Indigenous groups in Africa, like the Konkomba people, mill the seeds into flour, which they mix with water to form a paste. They then wrap the paste with plantain leaves. Another group. The Chalsa people of the Nkwanta district, boil the seeds and eat them as a complement to roasted cassava. African yam bean seeds may also be used as a protein-rich addition to soup (Bioversity). Yam bean leaves are also edible; they are cooked and consumed like spinach (FAO).

NUTRITION AND MEDICINAL USE

Both yam bean tubers and seeds (harvest before maturity) are nutritious alternatives to more common root crops and pulses, respectively. The more frequently utilized tubers contain 11-19% protein, at least twice the protein of most root crops, and sufficient levels of eight of the nine essential amino acids. Moreover, the yam bean tubers contain 3-6% dietary fiber by weight, more than many common tubers like potatoes. If collected before maturation, the pulses are also an excellent source of protein. Yam beans contain 20-25% complete protein, meaning that all nine essential amino acids are present in yam beans. Because rural diets are often cereal based, yam bean tubers and pulses can complement common grains like millet, sorghum, and fonio (Lost Crops of Africa).

AGRICULTURE

African yam beans are best cultivated in low-lying regions (Adewale and Odoh). It thrives on deep, loose sandy and loamy soils with good organic content and good drainage. Planting begins at the beginning of the rainy season; both the seeds and the tubers may be used for propagation. Ideal growing conditions are located in regions where annual rainfall ranges between 800 and 1400 mm, and where temperatures are between 19 and 27°C (Ecoport). Currently, the yam bean is primarily cultivated in traditional village farming settings, where it is frequently intercropped with yams and other beans (Human Development Library). Yam beans play a crucial role in intercropping and rotational cropping systems, as they maintain a symbiotic relationship with nitrogen-fixing bacteria (Plants for a Future). Harvest season begins five months after planting and spans up to 10 months post-planting (Human Development Library).

HISTORY

Wild yam beans were first domesticated in Ethiopia, then spread throughout East and West Africa. Today, both wild and cultivated yam beans are consumed. Common names for yam differ across the regions in which it is cultivated (Adewale and Odoh). Yam beans have been a part of East and West African diets for centuries, and thus several groups feature the crop sociocultural ceremonies. The people living in Ekiti, Nigeria often serve yam beans during marriage ceremonies (FAO). In Ghana's Volta region, yam beans are a component of meals served at celebration of puberty rights (Klu et. al).

RESEARCH

Until present, research on the viability and conservation of *Sphenostylis stenocarpa* is extremely limited. Although scientists have examined the yam bean's nutritional properties, there has been little collaboration between scientists and the indigenous people who cultivate yam bean. Improving scientific knowledge of the crop should incorporate the indigenous wisdom (Nnamani et. al). Despite the yam bean's potential to combat food insecurity and malnutrition, without improved knowledge of the crop's taxonomy, genetics, and potential for value-added goods, utilization will remain low.

COMMUNITY RESOURCES

- Klu et. al [Bioversity](#)
- [Feedipedia](#)

RESOURCES

- [Illustration](#)
- [Plants For A Future](#)
- [Human Development Library](#)
- [Lost Crops of Africa](#)
- [Nnamani et. al](#)
- [Ecocrop](#)
- [Ecoport](#)
- [Adewale and Odoh](#)

