



National Agricultural Research Institute

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AIBIKA GENETIC DIVERSITY OF PAPUA NEW GUINEA



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THE INSTITUTE

The National Agricultural Research Institute (NARI) was established by an Act of National Parliament of Papua New Guinea in July 1996 as a publicly funded, statutory research organisation to conduct applied and development oriented research on food crops, alternative food and cash crops, livestock and resource management issues. Besides applied and adaptive research, NARI is responsible for providing authoritative technical, analytical and diagnostic services and up-to-date information to the entire agriculture sector in PNG. The major targets are the smallholder semi-commercial farmers in the country.

The mission of NARI is to contribute, through applied research and technical services, to the development of the agriculture sector and realisation of the national goals by identifying, adapting and transferring agricultural technologies and information, so as to:

- Enhance the productivity, efficiency and sustainability of the smallholder agriculture, and
- Improve farmer income, food security and the welfare of Papua New Guineans and the Nation.

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INTRODUCTION

Papua New Guinea has a rich genetic diversity of aibika, or bele in the Fijian language (*Abelmoschus manihot* L. Medik). Aibika is a traditional leafy vegetable. Aibika provides a continuous supply of highly nutritious leaves throughout the year. Aibika is cultivated extensively in the lowlands by Melanesian societies, grown mainly for domestic consumption with the surplus sold in the local market for cash income.

Aibika tolerates a wide range of soil types but grows best in sandy loam and clay loam soils. Growth is poor on the highly alkaline soils of the coral atolls. Aibika is cultivated both in the seasonally dry lowlands (annual rainfall 1000 - 2000 mm) and in the wet lowlands (annual rainfall >2000 mm). It is also cultivated in higher altitude areas more than 2000 m above sea level and with annual rainfall of more than 2000 mm.

Harvesting can start three months after planting. Four to six harvests are common under good management before quality declines with leaf diseases and insect damage. However, plants can remain productive for 1-2 years.



Genetic diversity

Aibika National Germplasm Collection and Conservation (Field Gene - bank)

The National Aibika Collection held by the National Agricultural Research Institute (NARI) currently contains 113 accessions or landraces. Most accessions have been collected in farmers' fields throughout the country. Twenty six (26) accessions are from the seedling collection which contains plants derived from parent plants that produced flowers and seeds. One parent plant produces many seeds which can be germinated and planted out in the field as aibika seedlings. Seeds obtained from one parent plant produce plants with different morphological characteristics. Some of these plants do not have good eating quality, the leaves being unpalatable and full of hairs.

Description and Evaluation of Genetic Diversity in Aibika

Variation in aibika can be seen in morphological characteristics including: leaf shape, leaf and petiole colour, stem colour and leaf palatability.

Loss of Genetic Diversity Affects Food Security

In real farm situations, the genetic diversity of aibika in farmers fields is narrowed to only a few common landraces or cultivars. When the genetic base is narrowed to a few landraces they can be easily lost if hit by pests and diseases.



Leaf shapes and petiole colour

The more diversity a farmer has, the higher the likelihood of this crop surviving the pest or disease outbreak.

Therefore it is very important for farmers to ensure that the aibika landraces or cultivars they have are properly maintained in their gardens.

Having genetic diversity means food security for families, the community and the country.

So ensure that you continue maintaining and conserving your aibika genetic diversity in your gardens at all times.