

**SHORT COMMUNICATION III**

**SUGARCANE GERMPLASM EXPEDITION OF  
SOUTHEASTERN NIGERIA**

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**ABSTRACT.**

Sugarcane germplasm expedition was undertaken to the southeastern states of Nigeria in order to identify the available local sugarcane in this region. Fifty-three accessions were identified and collected. Phyto-geographical diversity in cane accessions was observed across the rainforest to the coastal swamp. Most of the clones differ in major morphological traits such as stalk height, girth and internodes colouration. Unlike the accessions which has been reported from the northern part of Nigeria, most of the accessions from the south-east are hard rinded and more resistant to smut and stem borer which are the most economically important disease and pest of sugarcane in Nigeria. They therefore have a great potential for breeding improved sugarcane varieties for sugar industries in Nigeria. These diverse and important breeding values confer on them a great potential as parent materials for use in the development of improved cane varieties for local growers and sugar estates.

**INTRODUCTION**

Sugarcane cultivation began in Nigeria as far back as 1900 (Aikulola, 1978). It was first adopted by few villagers as a garden crop, because unlike the indigenous crops

like yam, cassava, maize etc, it could not be prepared into a meal. It was only used as a form of snack. When local farmers noticed that it required more water for its growth than other crops, its cultivation spread into the inland valleys and flood plains of Nigeria. Currently, more than hundred clones of various species of

sugarcane are grown in small patches all over the southeastern valley of Nigeria. Most of them were introduced to the southeastern coast during the slave trade era by European sailors (Oguntoyinbo, 1978). However, collection expedition became necessary as a result of two major events. The first was the urgent need to expand the sugar industries in the country, which forced breeders to seek the available varieties that are better adapted to specific locations. This led to the expedition of sugarcane varieties in all the regions of the country (Kwon-Ndung *et al.*, 2000). The second compelling reason was the need to introduce disease resistant clones that could replace the existing poorly performing ones. The main purpose of the expeditions were to collect samples of genetic resources of local sugarcane and record base line information on their phenotypic variability and extent of cultivation of the crop in the region where they were collected.

## MATERIAL AND METHODS

Sugarcane Breeders from the National Cereals Research Institute, Badeggi undertook an expedition to Southeastern Nigeria, which comprises Anambra, Enugu, Abia, Imo, Ebonyi, Rivers, Bayelsa, Akwa Ibom and cross Rivers States. These states are located between latitude 4-7° N and longitude 7-9° E. This region lies in the rain forest and coastal swamp zone of Nigeria with an annual precipitation of 1,000-2000mm.

A structured questionnaire was designed to collect information on the location, local name of the clone, source or basic origin of the collection, and the name of the farmer from whom the samples were taken. Some morphological characters were also taken at collection. These included:- stalk height, girth, number of tillers per stool, erectness of the stool, leaf

sheath clasping (or thrashing ability), number of stools per unit area, internode shape, presence or absence of growth cracks, field refractometer brix, flowering time, presence of disease or pest, colour of the internode, and any other comments or observations. The questionnaire was administered to 100 farmers in 47 villages of the entire expedition area. A total of twenty-two (22) local government areas of the 9 states of the southeastern Nigeria were covered. At the time of collections, the cut-surfaces of the cane stalks were sealed with wax to prevent drying-up before they were brought for conservation and further evaluation at the headquarters.

## RESULTS AND DISCUSSIONS.

Throughout the collection expedition, a total of 53 accessions were collected. The highest collection was in Anambra State (10) followed by Enugu State (9), then Ebonyi (8). The least collection was made in Imo State (2). Anambra and Enugu States are under the same geographical location. During the expedition, large expanses of floodplains were observed between Anambra, Enugu and Ebonyi states. Sugarcane is widely cultivated in these areas as most farmers use part of their rice fields for sugarcane. In the coastal areas like Bayelsa, Rivers, Calabar and Akwa-Ibom, sugarcane is grown in household gardens except in few cases where it is grown in small stands on the riverbanks.

Throughout the collection expedition, most of the accessions collected were hard rinded, unlike the accession collected from the north (Kwon-Ndung *et al.*, 2000), which were soft rinded and easily chewed. Great diversity was observed in the accessions collected (Table 1). The stalk height ranged from 59.0cm to 200.0cm, while the girth ranged from 1.5cm to 6.0cm. The accessions collected from the

coastal area (Mangrove Swamp) were much taller and robust, (e.g. Bay-004, Bay-005, this could be due to greater annual precipitation in the eastern region. However, the Brix (which is the measure of sucrose content in juice) was low and the highest was observed in Ana-003 (19%), which was collected from the northern part of the southeast. There was a wide range of internode colour, ranging from purple green to yellow. In terms of shape, cylindrical internodes were most common among the accessions, though

various shapes like obconoidal, tumescent internode shapes were found among accessions collected. Perhaps due to hard rind (the tough, hard-walled fibre tissue of sugarcane) of the accessions, pests and diseases were not much; even smut that is the most devastating disease of sugarcane in Nigeria (Wada, 1997) was not recorded in any accession or farms throughout the expedition.

## REFERENCES

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