Molecular Characterization of Eight Accessions of Fonio Millet (*Digitaria spp*) Grown in Ghana.

Fonio millets (*Digitaria exilis, D. iburua*) are amongst the important indigenous cereal crops that greatly contribute to household food security in semi-arid and sub-humid drought-prone areas of West-Africa. They are crops showing high tolerance to drought, flooding and diseases. Due to their hardy nature, these traditional millets are regarded as priority crops in West-Africa, where they are essential to the diets of millions of people. Diverse biochemical investigations indicated that the nutritive value of fonio grain is favorably comparable with that of other cereals. Fonio has also a number of folk medicinal values, for example, it is a useful diet for those suffering from diabetes or for delivering women.

According to Goodman *et al*., (1988), like other crop, morphological traits have been for quiet along time used to analyze genetic relationships in fonio and in the classification of various accessions. However, these descriptors are inadequate and suffer from many limitations for precise characterization (Kumari and Gadag, 2002) since the environment can affect the result of the characterization. For this reason, the potential of these crops for food and agriculture is not adequately exploited for breeding works. This research therefore aimed at determining the genetic diversities among the eight accessions of fonio millet collected from various grown areas in Ghana to contribute to our knowledge on fonio millet accessions in Ghana.

Fresh leaves were harvested for DNA extraction using the CTAB extraction method two weeks after planting seeds. Nanodrop spectrophotometer was used to check the quality of total genomic DNA extracted. Scores for presence and absence of the banding patterns in the accessions were recorded and denoted with (1) for presence and (0) for absence. Dendrogram was constructed with UPGMA from the pairwise matrix of genetic similarity among the eight accessions of fonio millet. From the dendrogram it is evident that, there is diversity among the eight accessions of fonio millet under study.

With a perpendicular line drawn at 0.73 coefficient, the accessions can be grouped into five clusters.

Hence the relationship among these eight accessions will be a good indicator for breeders who are interested in developing synthetic cultivars. The results obtained is relevant for conservation management and exploitation of fonio genetic resources in breeding that ultimately may boost fonio production.