

ABB-1103: Development of NIRS and molecular marker to improve breeding efficiency in Greater Yam (*Dioscorea Alata* L.) for key quality traits

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Yams (*Dioscorea* sp.) are important food security crops in tropical and subtropical regions. *Dioscorea alata*, also known as greater yam, is one of the major cultivated species and most widely distributed throughout the tropics. The quality of tubers depends on many internal characters that determine their culinary and nutritional value (e.g., starch content, sugars, dry matter) and some external characteristics (e.g., shape). Conventional breeding for quality traits is essentially carried out based on phenotypic observations and it's difficult, costly and lengthy process. Thus, to facilitate breeding for different quality traits, we are developing different tools including NIRS (Near Infrared Spectroscopy) and molecular markers. The feasibility of use NIRS to predict some physico-chemical (dry matter content, starches, sugars, proteins) and textural characteristics (e.g. hardness, springiness, adhesiveness), is being tested on a panel of 27 contrasted accessions. Also a QTL approach is conducted on two diploid bi-parental progenies (about 300 hybrids) generated through manual hybridizations between contrasting diploid progenitors. Both progenies were genotyped by next-generation sequencing technology (GBS) to generate high- density genetic maps. The objectives of QTL analysis are 1) to identify the genomic regions involved in variability of traits that determine the tuber quality 2) to identify molecular markers associated with key quality traits 3) to acquire knowledge about the genetic control of characters that determine the tuber quality. First results of NIRS and QTL analysis will be presented.