S09-13 Uses of Droplet-vitrification technique as a long-term storage method and for virus elimination

Roosevelt Escobar[*], Ericson Aranzales[2], Liliana Muñoz[2], Auradela Rios[2], Adriana Nuñez[2], Joe Tohme[3]

1) Agrobiodiversity Research Program, CIAT, Cali, Colombia, 2) Genetic Resources Program, CIAT. Km 17 Recta Cali Palmira, Colombia.
* r.escobar@cgiar.org, Registrant ID# 4491

CIAT maintains the largest and diversity cassava world collection (with more than 6643 entries) that represent a primary diversity (80,6% landraces) collected on Latin- American, Central America and just few part of diversity on some Asian Countries. This collection is maintain in trust using in vitro tissue culture conditions, and depending on the behaviour of each clone, sub-culturing might be required every 8-16 months. Cryopreservation is the only available methodology to establish a black-box copy for long-term storage, allowing for the implementation of a safety backup in another location without any risk of deterioration and contamination by subculture, and reduce occurrences of human mistakes.

With a support of The Crop Trust, an inter CG-centres program were developed to test other cryo-method on their principal mandate crop by centre. An adaptation of Droplet vitrification (DV) published by Panis (2005), was the base to implement this technique on cassava allowing us overcome the lowest response on cassava with our previous method the Encapsulation dehydration.
A continuous fine-tuning of the DV method has allowed for a reduction of number of clones with lowest response to cryopreservation method. Based on a rough calculation, it estimated that only 7-10% of the global collection could maintained with poor response (Escobar et al, 2014). Time duration of treatment with a Loading Solution and PVS2 were a critical factors to obtain better plant recovery after liquid nitrogen phases on lowest responding materials.

Moreover, adaptation of this technique (Escobar et al 2014) plus thermotherapy conditions will be efficient for virus elimination on cassava (Aranzales 2015). A general overview on how could integrate cryopreservation research on Cassava genetics resources management at CIAT will be presented.