**Induction and development of *Theobroma cacao* friable calli, UF-650 clone from three types of explants**

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**Abstract**

This research aimed to evaluate three explants types of *Theobroma cacao* UF-650 clone in the induction and development of homogeneous friable calli, and define the best type in its formation for subsequent establishment of homogeneous cell suspensions to future produce bioactive secondary metabolites. Floral buds before the anthesis and young leaves, coming from plagiotropic branches, were selecting for floral explants experiments; the evaluating factors were: explant type (petal and staminoid) and explant origin, according to flowers insertion in the stem (primary, secondary and tertiary). In leaves experiment the factors were time exposure to NaClO- during the previous disinfection: establishment leaf zone (apical, half and basal); abaxial and adaxial position and explant origin, according to leaf insertion to the stem (primary, secondary and tertiary); trough a Taguchi statistical design, in order to propose the best variant in callus formation with desired characteristics. Callus formation from flower explants was similar. The best results in terms of friable callus formation, yellow-cream color, developed and homogeneous cellular composition, was obtaining of petals from secondary stems. In leaves explants, the best result in callus formation was of initial material taken from tertiary stems, using NaClO- (1.0%) for 15 minutes for disinfection; 2, 4-D (0.4 mg.L-1) and establishment of middle or basal leaf zone, in an adaxial position. The best general results were obtaining from petals with 80.74% of callus developed, friable and homogeneous in their cell composition.

**Keywords:** *Theobroma cacao*, callus, petals, staminoids, leaves