Use of arbuscular mycorrhizal fungi in the production of minitubers, new approach to produce sanitized seeds in *Xanthosoma sagittifolium* L. Schott (white cultivar)

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The general objective of this work is to evaluate the effect of mycorrhizal biofertilizers on the development and production of minitubers in *X. sagittifolium* to be used as sanitized seeds. Vitroplants of *X. sagittifolium* aged of 45 days were acclimated for one month and then mycorrhized. Four species of arbuscular mycorrhizal fungi (AMF) (*Glomus intraradices*, *Acaulospora tuberculata*, *Gigaspora margarita* and *Glomus* sp.) from the IRAD collection were used. Their effects were monitored for 180 days and data collected every 60 days. The results obtained showed that the presence of AMF stimulates the growth of the plant and the production of minitubers. Agronomically, the treatment of plants leads to an increase in the number of roots in treated plants compared to controls. A peak of growth is observed at 120 days. It's about 12 and 15 respectively in the control and in the treated plants. The leaf area also increases from 34 to 43.16 cm^2, the average plant size from 25 to 43 cm, respectively in controls and inoculated plants. Cytological analyzes show endophytic structures characteristic of endomycorrhizae such as arbuscular and branched pedicels (specific structure of Acaulosporaceae). In all treatments, mycorrhizal intensity, arbuscular content and mycorrhizal dependence were low and less than 50%. This indicates that the minituberization in *X. sagittifolium* does not depend only on the presence of the AMFs, but rather is stimulated by them. The results show that in the presence of AMF, the number of minitubers produced is three times higher compared to controls. The best percentage of tuberization (80%) is obtained with a mixture of the four strains of AMF. These minitubers keep 50% of their germinative supply after two months of storage at a temperature of 7 ~ 10 ° C. In general, this work indicated, that the mixture of the four AMF strains has a higher effect and therefore may constitute a potential biofertilizers in the production of sanitized seeds of *X. sagittifolium*.

Key words: *Xanthosoma sagittifolium*, arbuscular mycorrhizal fungi, minituberization, metabolites and germination test.