Introduction
The mass-rearing facilities of fruit flies produce millions of flies using artificial food prepared with raw ingredients of undetermined composition, which present high variability in quality and its impossible known the effect on production. In this study we assumed that the variability of the yeast used as a protein source can be partially uncontrolled, then, how do you determine its efficiency for mass rearing of fruit flies? The aim of this study was to determine if the current physicochemical and microbiological parameters allow determining the efficacy of the yeasts; or performing a bioassay is required.

Materials and Methods
The efficacy of the yeasts for larval food was determined in three experiments:
1) Physicochemical and microbiological characterization of each sample yeast.
2) Experimental bioassay used a random one-way design where the treatments corresponded to six commercial yeast: Borregard, Lallemand-LBI2240-25, Lallemand-LBI2163b, Lake States, Nutribo-SAFMEX and Nupro-Alltech for mass-rearing larvae of Anastrepha ludens, A. obliqua and Ceratitis capitata.
3) Semi-massive level-test including sexual competitiveness for males in field cages.

Physicochemical analysis consisted to determine the moisture, pH, acidity, solubility, density and protein content. Microbiological characterization consisted to determine the total count of unit forming colonies, molds, yeasts and coliforms. In addition, we determined the vitamins and amino-acid content for samples evaluated at semi-massive level.

RESULTS
The current physicochemical and microbiological analysis, including the vitamins and amino-acid content do not allow discriminate between efficient vs inefficient yeast. The bioassay at experimental and semi-massive level and sexual competitiveness test were the only test which allowed discriminate between different types of yeast. It means that we need develop and implement of new laboratory techniques to determine real parameters to ensure the quality of the ingredients for mass rearing fruit flies larvae for SIT, or optimize the bioassay including sexual competitiveness for males in field cages.

CONCLUSION
The most significant contribution of this work was to determine that the bioassay at experimental and semi-massive level were the only assessments to discriminate between different types of yeast; and that any evaluation of yeasts for larval development must include evidence of sexual competition for the sterile males.

REFERENCES