TITLE: MONITORING THE POPULATION OF *Saccharomyces cerevisiae* IN SEMI-DRY FERMENTED COFFEE (*Coffea arabica*) USING REAL-TIME PCR (qPCR)

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The use of starter culture for improvement of the fermentation process using several substrates have been proposed by some researchers. The quantitative real time PCR (qPCR) is a faster and more reliable alternative to identify and quantify yeasts during fermentation and has been widely used in recent years In the present work, two coffee bean varieties (Ouro Amarelo and Mundo Novo) were, respectively, inoculated with two strains of *Saccharomyces cerevisiae* - CCMA 0200 (formerly CA11) and CCMA 0543 (formerly UFLA YCN727) during semi-dry coffee fermentation. The persistence of the inoculated strains populations was confirmed using qPCR. During semi-dry coffee fermentation, a non-inoculated fermentation was performed as control. Samples were collected times 0, 24, 48 and 284 hours after inoculation. The *S. cerevisiae* population in the control fermentation was 3.8 to 3.6 log cell/g (with 0 h and 284 h of fermentation, respectively) for Ouro Amarelo cultivar and 3.3 to 3.4 log cell/g for Mundo Novo cultivar. *S. cerevisiae* CCMA 0543 had a population that ranged from 5.6 log cell/g (beginning fermentation)to 4.8 log cell/g (final drying) to Ouro Amarelo cultivar. With the same strains the population ranged from 6.3 log cell/g to 4.3 log cell/g to Mundo Novo cultivar. The persistence of this strain was significantly higher when compared to the control. Inoculation with the CCMA 0543 strain performed better than the CCMA 0200 strain. This was probably due to better physiological adaptation of CCMA 0543 than *S. cerevisiae* CCMA 0200. The CCMA 0200 yeast has been isolated from a sugarcane fermentation process, being more adapted to alcoholic fermentations. The yeast strains studied presented different behavior in relation to the coffee variety evaluated. Strain CCMA 0543 was the most suitable as an inoculant due to its enhanced persistence during the process and a better persistence in the Mundo Novo cultivar.

Keywords: coffee fermentation, qPCR, *Saccharomyces cerevisiae*, starter culture

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