TITLE: EVALUATION OF RESISTANCE TO STRESS CONDITIONS OF YEASTS ISOLATED FROM COCOA FERMENTATION OF SOUTHERN BAHIA.

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ABSTRACT:

Cocoa tree (*Theobroma cacao* L.) is a plant originated in the Amazon Basin and cultivated in tropical regions of the world, focused mainly on the use of its seeds for chocolate production. The stages of cocoa pre-processing (harvesting, fermentation and drying) directly influence the quality of the final product, because the yeast's enzymes promote chemical reactions of curing in the later stage (drying), stabilizing the characteristic of chocolate color and flavor. Such yeasts are also capable of initiating the spontaneous fermentation process, so there is currently a great interest in discovering specimens that are capable of promoting benefits such as acceleration of fermentation process and improvements in organoleptic characteristics of the final product. In this way, aiming to find a possible candidate for future studies with starter cultures, the objective of this work was to evaluate the resistance of 23 yeasts from the cocoa fermentation to stress conditions commonly observed in the fermentation process. The work was carried out with yeasts from spontaneous cocoa fermentation in southern Bahia; they were submitted to qualitative evaluation of growth under different temperature conditions (28ºC, 37ºC e 45ºC), pH (2.5, 3.5 e 4.5), glucose (5%, 15% e 30%) and ethanol concentrations (8%, 10% e 12%). Under different temperature conditions presented grown at 28ºC (91,3% of yeasts in 24h, 95,6% in 48h, 96h and 144h); at 37ºC (100% in 24h, 48h, 96h e 144h) and 45ºC (100% in 24h, 48h, 96h and 144h). Under different pH conditions grown was observed at pH 2.5 (56,5% in 24h and 78,3% in 48h); pH 3.5 (78,3% in 24h and 100% in 48h) and pH 4.5 (86,9% in 24h and 95,6% in 48h). Under different glucose concentration, grown was observed at glucose at 5% (91,3% in 24h and 95,6% in 48h); Glucose at 15% (82,6% in 24h and 95,6% in 48h) and glucose at 30% (43,5% in 24h and 91,3% in 48h). and under different ethanol concentrations was observed grown at ethanol at 8% (47,8% in 24h and 65,2% in 48h); Ethanol at 10% (26,1% in 24h and 43,5% at 48h) and ethanol at 12% (4,3% in 24h and 48h). It can be concluded that the yeasts tested have a biotechnological potential to be used as a starter culture, since they are capable, in most cases, of resisting the adversity conditions possibly encountered during the fermentation, being, however, the ethylic concentration possible limiting factor for the development of the inoculum during cocoa fermentation process.

Keywords: cocoa pre-processing, inoculum, starter cultures, yeast resistance

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