

## Investigation of effective methods on control of *Saccharomyces cerevisiae* metabolism for storage of Trehalose and evaluation of the effect of Trehalose on the resistance of *Saccharomyces cerevisiae* cells to environmental stress

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**T**rehalose( $\alpha$ -D-glucopyranosyl- $\alpha$ -D-glucopyranoside) is a non-reducing disaccharide found in different species but not in vertebrates. The ability of anhydrobiotes such as yeast (*Saccharomyces cerevisiae*) to survive great periods of extreme desiccation is associated with high trehalose levels found in these organisms. Its levels increase as a response to stress conditions, such as dehydration, temperature increase, oxidative stress, glucose starvation, osmotic pressure and growth factor ( $\mu$ ). We investigated the effect of three parameters: in our recipe design, temperature, growth rate, and time of aeration after stopping feeding molasses for the synthesis of trehalose in baker's yeast by using an experimental design method in an industrial fermenter in the Khuzestan Yeast company. The results showed that the temperature had the greatest effect on the synthesis of trehalose, also the interaction of three parameters had the desired result. Furthermore, by increasing the level of trehalose, we also managed to increase gas production in the dough.

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