

Metal ion regulation of *Pichia kudriavzevii* MZ5 for degradation of biogenic amines

Cuicui Zhu¹, Xiao Cheng¹, Yilin Li¹, Fei Xu¹, Fangbin Hu¹, Chengxiang Zhang¹, Dongfeng Wang¹, and Ying Xu¹

¹State Key Laboratory of Marine Food Processing and Safety Control, College of Food Science and Engineering, Ocean University of China, Qingdao

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Abstract

Biogenic amines (BAs) are naturally present in various foods, and high levels of them have a negative impact on human health. *Pichia kudriavzevii* MZ5 exhibits excellent potential in degrading biogenic amines. Among the tested addition of the culture medium components, Mg²⁺ is the most effective factor of enhancing the ability of *P. kudriavzevii* MZ5 to degrade biogenic amines. After 72 h of cultivation, the total biogenic amines degradation rate increased from 14.2 % to 43.39 % when Mg²⁺ presented in the medium. The biomass of *P. kudriavzevii* MZ5 decreased, but there was no correlation between the yeast biomass and the biogenic amines degradation rate in this experiment. The addition of Mg²⁺ in the medium increased the GSH of *P. kudriavzevii* MZ5 from 0.34 mg/mg prot to 0.82 mg/mg prot, GST from 2.76 U/mg prot to 3.30 U/mg prot, and Ca²⁺-Mg²⁺-ATPase activity from the original 5.36 U/mg prot to 17.36 U/mg prot. These results indicate that Mg²⁺ significantly influenced the degradation ability of *P. kudriavzevii* MZ5 towards biogenic amines, which suggest that Mg²⁺ may have a great potential as a promoter for microbial degradation of biogenic amines.

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