

The thermos- and ethanol tolerance of the isolated yeasts from wastewater for ethanol production

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Abstract: A thermotolerant yeasts are widely applied in several industrial productions, especially for bioethanol energy. Thermotolerant yeasts have significant advantages in the ethanol industry by decreasing cooling costs or reducing the risks of microbial contamination. The exploration of new thermotolerant yeasts are necessary to enhance the fermentation efficiency. Thus, the purpose of this study was to characterize thermotolerant yeasts collected from several wastewater samples. A phylogenetic analysis based on the D1/D2 from the large subunit rDNA region were used to identify of 20 yeast isolates collected from wastewater samples. Their growth physiology under heat stress of 45°C were evaluated. The results showed that 12 yeast isolates of *Pichia kudriavzevii* showed the capable of growing at temperatures up to 45°C. Nevertheless, eight isolates of *Candida tropicalis* could not exhibit this performance. In addition, 12 *P. kudriavzevii* isolates were found to be tolerant up to 15% (v/v) ethanol. Results from this study showed the potential of 12 newly isolated *P. kudriavzevii* for industrial bioethanol production. To gain further insight to improve ethanol yields, further studies on molecular mechanisms and the type of substrates are required.

Keywords: thermotolerant yeast; wastewater; ethanol-tolerant; ethanol production



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