CONSTRUCTIONS AND CHARACTERIZATION OF *KOMAGATAELLA PHAFFII* STRAINS THAT PRODUCE *CRL1* LIPASE UNDER THE CONTROL OF *TSA1* PROMOTER.

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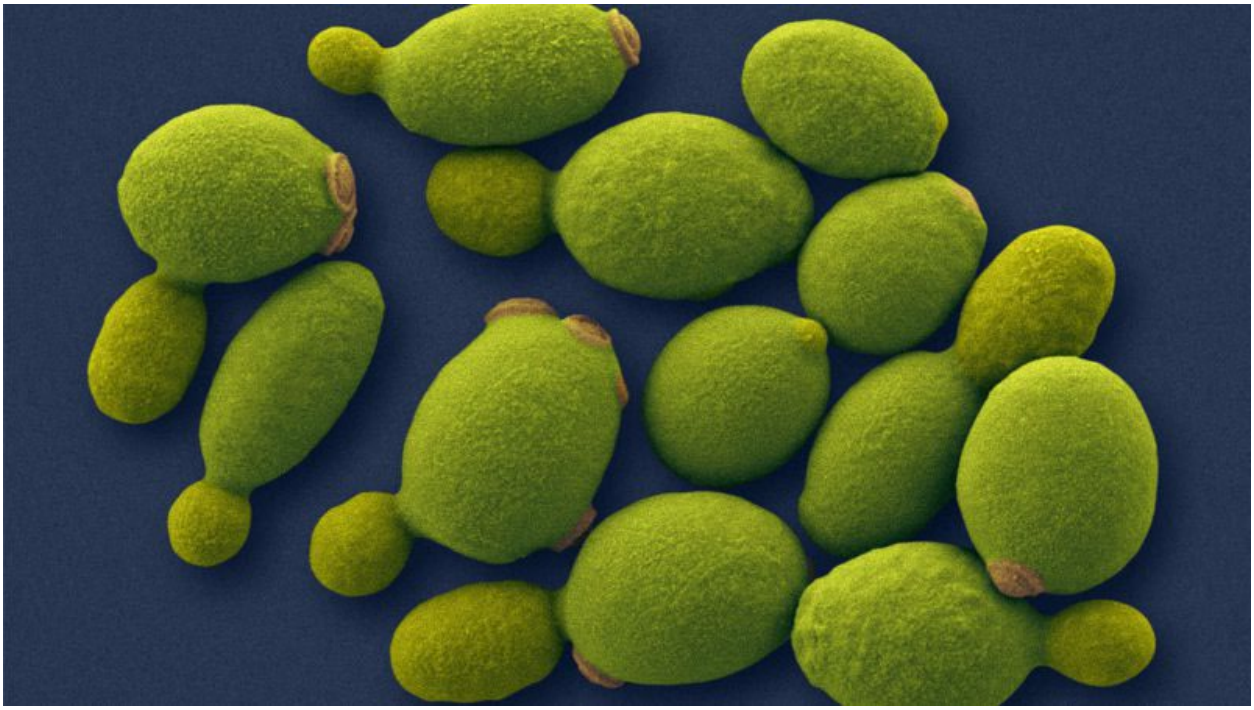

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Abstract

This work explored the production of *Candida rugosa* lipase 1 (*CRL1*) in *Komagataella phaffii* using the Thioredoxin peroxidase promoter (*TSA1)*, which has been reported to be inducible by alkaline pH, as an alternative to the traditional aldehyde oxidase (p*AOX1)* methanol-inducible system. Although higher lipase production was expected at pH 8.0, the results showed greater activity at pH 5.5. This suggests that the insertion of the genetic cassette may have altered the promoter's response. Despite not achieving induction with alkaline pH, remarkably high constitutive lipase production was obtained at pH 5.5, surpassing even the p*AOX1* system in terms of efficiency and safety.

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