# A host-vector system for the expression of a thermostable bacterial lipase in a locally isolated Meyerozyma guilliermondii SMB


## ABSTRACT

Screening for a new yeast as an alternative host is expected to solve the limitations in the present yeast expression system. A yeast sample which was isolated from the traditional food starter 'ragi' from Malaysia was identified to contain Meyerozyma guilliermondii strain SMB. This yeast-like fungus strain SMB was characterized to assess its suitability as an expression host. Lipase activity was absent in this host (when assayed at 30 °C and 70 °C) and Hygromycin B (50 μg/mL) was found to be its best selection marker. Then, the hyg gene (Hygromycin B) was used to replace the sh ble gene (Zeocin) expression cassette in a Komagataella phaffii expression vector (designated as pFLDhα). A gene encoding the mature thermostable lipase from Bacillus sp. L2 was cloned into pFLDhα, followed by transformation into strain SMB. The optimal expression of L2 lipase was achieved using YPTM (Yeast Extract-Peptone-Tryptic-Methanol) medium after 48 h with 0.5% (v/v) methanol induction, which was 3 times faster than another K. phaffii expression system. In conclusion, a new host-vector system was established as a platform to express L2 lipase under the regulation of PFLD1. It could also be promising to express other recombinant proteins without inducers



**Keyword:** Pichia sp.; Meyerozyma guilliermondii; Thermostable lipase; Formaldehyde dehydrogenase promoter; Yeast; Alternative host