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Meyerozyme guilliermondii: An alternative yeast for recombinant protein production

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A locally isolated *Meyerozyme guilliermondii* from Malaysia was first identified as *Pichia sp*. strain SO. The host possessed two strong methanol inducible promoters (alcohol oxidase–AOXp) and formaldehyde dehydrogenase–FLDp). Strain SO, which was originated from spoilt orange, has shown its capability in the expression of a bacterial lipase from *Geobacillus zalihae* under the regulation of *Pichia pastoris* expression vector (containing AOXp). A commonly used yeast system *P. pastoris* required high methanol induction (2%) with 196 h cultivation time. Methanol induction was required every 24 h interval to induce the promoter. This production strategy was uneconomical and the produced protein was contaminated with methanol. Thus, *M. guilliermondii* that has a similar AOXp was transformed with the same vector just like *P. pastoris* has overcome the bottlenecks. The result has proven that the recombinant lipase has generated a stable integration in *M. guillilermondii* genome. The production of the recombinant lipase was optimized and found that YPTG and YPTM were the best production and induction media, respectively for strain SO. Time taken to reach its optimum condition was 30 h with 1.5% methanol induction. This finding has proven that strain SO could be used to express the bacterial lipase efficiently. This alternative host maybe used to express other recombinant proteins. This was the first study that used *M. guillilermondii* as a host organism. Current work is in progress are to express other recombinant proteins in this host using AOXp and FLDp. In conclusion, M. guilliermondii strain SO was successfully been used to express the recombinant protein and it was expected to overcome the limitations faced in existing yeast expression systems. Resonance Surface Methodology technique can be implemented to find the optimum production condition that may improve the level of recombinant protein expression in this new established system.

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