

**A unique thermostable and organic solvent tolerant lipase from newly isolated
Aneurinibacillus thermoaerophilus strain HZ: physical studies**

ABSTRACT

A newly isolated thermophilic bacterium, *Aneurinibacillus thermoaerophilus* strain HZ, from a hot spring recreational area (Sungai Kelah, Malaysia), showed an extracellular lipase activity. It was identified based on 16S rRNA sequencing, where phylogenetic analysis revealed its homology to *Aneurinibacillus thermoaerophilus*. The strain produced a lipase that was stable in various organic solvents such as dimethyl sulfoxide, toluene, p-xylene, and hexane. In order to increase lipase production, optimization of physical factors which affected the growth and lipase production was studied. The optimal growth was obtained at 50°C and pH 8.0; while the maximal lipase production was achieved in the logarithmic decline phase at 60°C and pH 7.5 with 7% starting inoculum and 150 rev/min shaking rate for 48 h incubation.

Keyword: *Aneurinibacillus thermoaerophilus* strain HZ; Thermostable lipase; Optimization of physical factors; Organic solvent tolerant