

## Partial purification and characterization of the molybdenum-reducing enzyme from the glyphosate-degrading *Burkholderia vietnamiensis* strain AQ5-12

### ABSTRACT

In this study, a novel glyphosate-degrading shows the ability to reduce molybdenum to molybdenum blue. The enzyme from this bacterium was partially purified and partially characterized to ascertain whether the Mo-reducing enzyme from this bacterium shows better or lower efficiency in reducing molybdenum compared to other Mo-reducing bacterium that only exhibits a single biotransformation activity. The enzyme was partially purified using ammonium sulphate fractionation. The  $V_{max}$  for the electron donating substrate or NADH was at 1.905 nmole Mo blue/min while the  $K_m$  was 6.146 mM. The regression coefficient was 0.98. Comparative assessment with the previously characterized Mo-reducing enzyme from various bacteria showed that the Mo-reducing enzyme from *Burkholderia vietnamiensis* strain AQ5-12 showed a lower enzyme activity.

**Keyword:** Molybdenum-reducing bacterium; Michaelis-Menten constants; NADH; *Burkholderia vietnamiensis*; Glyphosate-degrading bacterium