

Effect of urea-N on growth and indoleacetic acid production of *Stenotrophomonas maltophilia* (Sb16) isolated from rice growing soils in Malaysia

ABSTRACT

Growth and activity of N₂-fixing bacteria can be affected by N fertilizer application. A study was conducted at Universiti Putra Malaysia, Malaysia, to determine the effect of urea-N on the growth and indoleacetic acid (IAA) production of diazotrophic *Stenotrophomonas maltophilia* strain Sb16 (accession number, JQ820255), previously isolated from rice (*Oryza sativa* L.) growing soils of Malaysia. Five rates of N from urea fertilizer were applied (0, 50, 100, 150, and 200 kg ha⁻¹) to the flooded rice soil and incubated in the control environment for 6 wk. Results showed that the population growth increased with increased N rates and highest population (8.2 log₁₀ cfu mL⁻¹) recorded in soil-standing water at the second week of incubation. The population decreased with the reduction of total N. Soil and soil water pH increased from 7.1 to 8.4 at the first week of incubation. Production of indoleacetic acid was significantly reduced with N fertilizer application. The highest indoleacetic acid (2.6 mg mL⁻¹) was produced in the control treatment. Application of high rates of N fertilizer increased the population of diazotrophic strain Sb16 but significantly reduced indoleacetic acid production.

Keyword: Diazotroph; Incubation study; Paddy soil