

Microtitre Plate Assay for Biofilm Formation, Production and Utilization of Hydroxybiphenyl by *Rhodococcus* sp. Isolated from Gasoline-Contaminated Soil

Zahra Etemadifar and Giti Emtiazi*

Department of Biology, The University of Isfahan, HezarJerib. St, Isfahan, 81746-73441, Iran.
Fax: +9831 17932456. E-mail: emtiazi@yahoo.com

* Author for correspondence and reprint requests

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Gasoline-contaminated soil from Isfahan, Iran was selected to isolate a bacterium capable of desulfurizing dibenzothiophene (DBT). The isolated strain was named R1 and identified as *Rhodococcus erythropolis* through biochemical tests as well as sequencing of 16S rRNA gene. This strain could efficiently produce 2-hydroxybiphenyl (HBP) from DBT via the 4S metabolic pathway. The highest HBP amount was produced at 2 mM DBT with addition of glucose (10 g l^{-1}), ethanol (3 g l^{-1}), glycerol (2 g l^{-1}) or succinate (10 g l^{-1}) as carbon sources at pH 7. Highest respiration and growth rates were observed by microplate titration on 0.1 mM HBP, and addition of 0.2 mM HBP to glucose (1 g l^{-1}) and DBT (0.3 mM) could inhibit the respiration of the isolate. The isolated strain could grow up to 0.4 mM of HBP when it is used with mineral sulfur as sole sulfur source. To the best of our knowledge this is the first report on a microtiter assay for the production and utilization of HBP by *Rhodococcus*.

Key words: 2-Hydroxybiphenyl, Dibenzothiophene, Microtitre Plate