



## Removal of MTBE by novel *Exiguobacterium* in seawater

Giti Emtiazi<sup>a</sup>, Afrouzossadat Hosseini Abari<sup>a,\*</sup>, Fariba Rahehagh<sup>b</sup>

<sup>a</sup>Department of Biology, Faculty of Science, University of Isfahan, Hezarjerib St., Isfahan 81746-73441, Iran  
Tel. +98 311 6733619; Mobile: +98 9131295343; email: afrouz\_hosseini1985@yahoo.com

<sup>b</sup>Pars Oil and Gas Company, Tehran, Iran

Received 1 February 2009; Accepted 1 July 2010

---

### ABSTRACT

For over three decades, methyl-*tert*-butyl ether (MTBE) has been used as an additive to either increase the octane number in high and medium grade gasoline in substitution of tetraethyl lead or to raise its oxygen content. However, the fate of MTBE in the environment is a great concern. In this work, biomass of novel toluene degradator *Exiguobacterium*, isolated from toluene enriched seawater, could utilize MTBE by 72% and produced CO<sub>2</sub> and formate during degradation. Production of ketone and *tert*-butyl alcohol (TBA) has not been seen by gas chromatography (GC). Degradation of MTBE has been seen in aerobic and anaerobic conditions from 4 to 30 °C. It is interesting that the highest degradation occurred during growth in aerobic and cold condition (4 °C). This suggested that in cold areas *Exiguobacterium* is a very good candidate to degrade MTBE. Since this novel isolate could tolerate high salt, it is useful for removal of MTBE from seawater.

*Keywords:* *Exiguobacterium*; MTBE; Pollution; Seawater

---

---

\*Corresponding author.