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## MICROBIAL HYDROGEN SULFIDE ELIMINATION IN A CONTINUOUS BIOTRICKLING REACTOR BY IMMOBILIZED *THIOBACILLUS THIOPARUS*

Elimination of hydrogen sulfide from gaseous streams by biological treatments is a promising alternative procedure, among them biotrickling reactor seems a reliable and efficient system. To maximize the performance, strains should have high hydrogen sulfide elimination efficiency; excellent carriers should be selected where the microbes can be immobilized. Various carriers were used as the support medium for the immobilization of *Thiobacillus thioparus* and a continuous biotrickling reactor was constructed and operated for H<sub>2</sub>S elimination. It was found that such systems with Mavicell and Kaldnes supports are able to remove H<sub>2</sub>S from gas mixtures with high efficiency (95–100%), and the elimination capacity was calculated as a high as 30–40 g S/(m<sup>3</sup>·h).

### 1. INTRODUCTION

Biological techniques for elimination of hydrogen sulfide can be applied in a wide range and seem quite promising in removing malodorous compounds. Among these components hydrogen sulfide is one of the most important substances, since its smelling limit value is rather low, 0.5–2.0 ppb [1]. The biological elimination of air pollutants has been studied intensively [2]. One of the intensification methods of these biosystems is the immobilization of the microbes in a form of biofilm, which exploits a natural bounding capability of certain microorganisms on a given surface, thus the pollutants can be eliminated with higher effectiveness [3]. The performance of an immobilized film bioreactor can be enhanced by selection of a proper support material for the given microorganism [4]. Suitable supports with a high specific surface area provide optimal conditions for the microbes [5].

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