

## 嫌気性汙床法の処理特性および嫌気性細菌群の 分布状態におよぼす基質濃度の影響

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### 概 要

反応槽上部のみに汙材を充填した上向流式嫌気性汙床法を用いて、基質除去特性および付着・浮遊・堆積の三つの形態で存在している嫌気性細菌群の、分布状態におよぼす基質濃度の影響について検討した結果、次のような知見が得られた。①処理水水質が安定するまでの期間は約3カ月間であり、反応槽全体に汙材を充填した一般的な嫌気性汙床法のスタートアップ期間と同様な値を示した。②流入基質濃度が2,766mg COD/lから184mg COD/lに低下すると共に、COD除去率も86%から72%に減少した。③流入基質濃度の増大と共に、浮遊状態および堆積状態の酸生成細菌の細菌数も増大したが、付着状態の酸生成細菌の細菌数はほとんど変化しなかった。また、酸生成細菌は堆積状態の細菌数が最も多かった。④酸生成細菌は浮遊状態の細菌数が付着状態の細菌数より多かったが、メタン生成細菌は付着状態の細菌数が浮遊状態の細菌数より大きい値を示した。

# Effect of Substrate Concentration on Treatment Characteristics and Bacterial Distribution in Anaerobic Filter System

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## Abstract

The effects of influent COD concentration on the characteristics of substrate degradation and the distribution of bacterial population in the anaerobic filter were investigated by using the laboratory - scale upflow reactor. The media were packed only in the upper part of the filter. The substrate COD concentration ranged from 184 to 2,766 mg/l.

About three months of operation were required to reach stable conditions. Total COD removal efficiency decreased from 86 to 72% as influent COD concentration decreased from 2,766 to 184 mg/l. When influent COD concentration was more than 461 mg/l, the

numbers of settled, suspended and attached acidogenic bacteria were about  $10^8$ ,  $10^7$  and  $10^6$  MPN/ml, respectively. The number of settled acidogenic bacteria increased as the influent COD concentration increased. The number of suspended acidogenic bacteria were larger than that of attached one, but the number of suspended methanogenic bacteria were smaller than that of attached one.