

Effects of the composition of the gaseous phase on the formation of hydrocarbons in *Desulfovibrio desulfuricans*

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Abstract

Changes in the synthesis of extracellular metabolic products generated by sulfate-reducing bacteria *Desulfovibrio desulfuricans* grown on a lactate-containing mineral medium in the presence of H₂ and CO₂ at various volume ratios in the gaseous phase were studied. An increase in the amount of extracellular products synthesized by the bacteria was observed at an H₂/CO₂ ratio of 3 : 1. High concentrations of molecular hydrogen (80-95%) in the presence of 5-20% CO₂ facilitated the synthesis of hydrocarbons (alkanes) whose highest concentrations were produced at an H₂/CO₂ ratio of 9 : 1. An increase in the initial CO₂ concentration in the gaseous phase above 20% increased the amount of oxygenated compounds in the culture.
