

## **Setups of Microbial Hydrogen Consumption Experiments: Advantages and Disadvantages**

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Numerous microbiological and molecular biological studies on original samples from porous underground storage facilities and caverns have clearly shown that active microorganisms are very common in these systems. In addition, enrichment and model experiments have shown that hydrogen storage under certain geological conditions can lead to undesired activation of these specific microorganisms. Sometimes, laboratory investigations lead to contradictory interpretations of microbiological results, often due to differences in experimental design. The advantages and disadvantages of different strategies of model experiments to determine hydrogen consumption by reservoir microorganisms will be discussed. The results and potential misinterpretations of different experimental setups will be explained using a concrete case study.

The possibilities and limitations of long-term microbiological simulation experiments will be critically discussed in order to bridge the essential questions of storage operators and analytical laboratories.