TEST-SYSTEMS FOR MONITORING OF CORROSION-RELEVANT SULFATE-REDUCING BACTERIA USING REAL-TIME PCR ASSAY

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The possibility of the designing test-systems for specific detection of corrosive-relevant sulfate-reducing bacteria using real-time PCR assay were investigated. This method of the
bacteria identification is based on the detection of the functional genes, encoding key enzymes of dissimilatory sulfate-reduction pathway, i.e. dissimilatory sulfite reductase α subunit \( dsrA \). It was established among the six test-systems specificity reveal only three designed on the base of \( Desulfotomaculum, Desulfovibrio, Desulfobulbus \) genera sequences. The most corrosive-relevant strain \( Desulfovibrio \) sp. UCM B-11503 \( dsrA \) gene detected more effectively (threshold cycle was 20,0), than less corrosive-relevant strains \( Desulfovibrio \) sp. UCM B-11504 (threshold cycle was 28,1) and for \( Desulfotomaculum \) sp. UCM B-11505 and \( Desulfomicrobium \) sp. UCM B-11506 were 24,9 and 23,1 cycles, respectively. Test-systems allowed identifying corrosive-relevant sulfate-reducing bacteria faster and more effective. This approach will serve as a base for monitoring of these bacteria for estimating corrosion sites on the high-level dangerous man-caused objects.

**Key words**: sulfate-reducing bacteria, dissimilatory sulfate-reduction genes, test-systems, real-time PCR.

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The method of diagnosis microbiota disbalance for different human biotopes and level of its severity.

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