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Production of Volatile Sulfur Compounds in Periodontal Pockets. J. CARLSSON, R. CLAEISSON, S. PERSSON (Department of Oral Microbiology, University of Umea, Umea, Sweden).

The microbiota of the periodontal pocket has a high capacity to produce the volatile sulfur compounds, hydrogen sulfide and methyl mercaptan. No other volatile sulfur compounds have been detected in periodontal pockets. Hydrogen sulfide is formed from L-cysteine by L-cysteine desulfhydrase, and from L-cysteine by L-cysteine lyase. Methyl mercaptan is formed from L-methionine by L-methionine gammalyase. The level of the sulfur amino acids in tissue fluids and in blood plasma is, however, less than 0.1 mmol/liter. The main source of these amino acids in the periodontal pockets is probably plasma proteins degraded by the periodontal microbiota. Among the members of the periodontal microbiota, the most potent producers of hydrogen sulfide from L-Cysteine are Peptostreptococcus anaerobius, Peptostreptococcus micros, Eubacterium limosum, Centipeda periodontii, and Selenomonas artemidis. Bacteria with a high capacity to degrade plasma proteins and form hydrogen sulfide are Treponema denticola, Porphyromonas gingivalis, Porphyromonas endodontalis, Prevotella intermedia, and Prevotella loescheii. Significant amounts of methyl mercaptan is formed from L-methionine by Fusobacterium nucleatum, Fusobacterium periodonticum, and Porphyromonas endodontalis, and from plasma proteins by Porphyromonas gingivalis and Porphyromonas endodontalis.