
Purpose: To determine the qualitative and quantitative microbiota present in successive scaler samples of subgingival biofilms, and deduce the reproducibility of this procedure.

Materials and Methods: Twenty healthy and 20 periodontally diseased individuals were examined. The exclusion criteria included antibiotic or periodontal therapy in the past 3 months, systemic conditions that might affect the periodontal status. For the healthy patients, seven successive subgingival samples were taken from one disto-buccal (DB) sites, adjacent to a posterior tooth. For the diseased patients, seven successive subgingival samples were taken in each of three categories, shallow (≤3mm), medium (4-5mm), and deep (≥6mm). After removing the supragingival plaque, the samples were collected using a single stroke with a 13/14 Gracey curet. The samples were then placed in a microcentrifuge tube until analysis was performed. Samples were analyzed individually for their content of 40 bacterial species using check board DNA-DNA hybridization. The mean proportions for DNA probe counts of 40 species, the significance of difference among successive samplings for each probing depths category, the reproducibility of proportions of each species at individual sites, were all determined.

Findings: There were similar bacterial profiles in each of the samples form an individual site. Significantly more plaque was found in moderate and deep pockets of periodontitis subjects than in the shallow pockets of healthy and periodotitis subjects. The plaque was reduced form the first swipe to the seventh. The counts of species were reduced at successive swipes but the mean proportions of species remained the same. The reproducibility of the red and orange complex bacteria was most consistent in all pockets. The minimum similarity coefficient for all species was 51%, which is high, given the variation that may be expected for region to region within the oral cavity. It is also indicates that repeated sampling from the same periodontal site provides similar microbial data.

Conclusion: Curet sampling provides us with a reliable and reproducible method to obtain subgingival plaque. Regardless of the amount of plaque that was collected during the different consecutive swipes, the proportions of the bacteria were consistent. The samples were much more consistent within the same sample site, than within 2 different sites.