Objective: This study aimed to compare the prevalence of periodontopathic and caries-related microflora in tongue and plaque samples from children with and without sickle cell disease (SCD).

Method: Forty-nine children with SCD and 48 healthy controls were recruited and divided to subgroups according to their dentition (SCD-deciduous=SCD-D, SCD-permanent=SCD-P, Control-deciduous=C-D, Control-permanent=C-P). Periodontal-pocket-depth(PPD), gingival-index(GI), plaque-index(PI), bleeding-on-probing(BOP), biofilm-gingiva-interface-index(BGI) and decay-missed-filled-teeth index for deciduous (dmft) and permanent (DMFT) teeth were recorded. Supra and subgingival plaque and tongue coating samples were collected and cultured. VITEC-2 system was used for further identification. Fisher's-exact test and Mann-Whitney-U test, Pearson-correlation were used for statistical analysis, (p<0.05).

Result: There were no significant differences between the groups regarding age, gender, periodontal status and the mean dmft/DMFT values. The only significant difference was observed between the permanent dentition groups regarding *Streptococcus (S.) sanguinis*. While 16% of C-P group had *S.sanguinis*, this bacteria not detected in SCD-P group (p<0.05). The prevalence in SCD-D, C-D, SCD-P and C-P groups was 23.5%, 43.5%, 53.1% and 32% for *S.mutans*, 47.1%, 4.8%, 34.4% and 40% for *S.mitis*, 52.9%, 52.2%, 48.3% and 21% for *Candida albicans*, 11.8%, 17.4%, 6.3% and 12% for *Porphyromonas gingivalis*, 5.9%, 4.3%, 6.3% and 0% for *Prevotella(P.) intermedia*, 5.9%, 17.4%, 9.4% and 16% for *Fusobacterium nucleatum*, 11.8%, 13%, 9.4% and 12% for *P.nigrescens*, 17.6%, 13%, 12.5% and 20% for *Actinomyces(A.) naeslundii*, 0%, 8.7%, 18.8% and 8% for *A.meyeri*, respectively. Significant correlations between *P.intermedia* and BGI (r=-0.424-p=0.002), *A.naeslundii* and PI, GI and BOP (r=0.510-p=0.000, r=0.439-p=0.002, r=0.485-p=0.000 respectively), *A.meyeri* and history of acute chest syndrome(r=0.427-p=0.002) and splenic sequestration(r=0.340-p=0.017) and *P.nigrescens* and white-blood-cell-count (r=0.377-p=0.008) were determined in children with SCD.

Conclusion: The oral health status and dental plaque microflora in children with SCD are similar with those of their healthy counterparts. The presence of some periodontopathogens may be associated with the clinical complications of SCD.