**Supplementary Table 1**. Demographic and clinical data for the participants. NC-LC= no or low caries ; MC-HC = moderate-high caries

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ID** | **smoking** | **sex** | **age** | **ageBegin** | **duration of smoking years** | **VPI %** | **Decayed** | **Missing** | **Filled** | **DMF** | **Groups** |
| C4 | S-Cigarettes | Male | 23 | 15 | 8 | 0.1 | 1 | 1 | 4 | 6 | MC-HC |
| C12 | S-Cigarettes | Male | 35 | 26 | 9 | 0.29 | 2 | 3 | 0 | 5 | MC-HC |
| C25 | S-Cigarettes | Male | 37 | 15 | 22 | 0.41 | 6 | 1 | 0 | 7 | MC-HC |
| C30 | S-Cigarettes | female | 50 | 30 | 20 | 0.33 | 0 | 11 | 5 | 16 | MC-HC |
| C38 | S-Cigarettes | Male | 25 | 15 | 10 | 0.91 | 1 | 2 | 0 | 3 | NC-LC |
| C49 | S-Cigarettes | Male | 44 | 22 | 22 | 0.32 | 2 | 6 | 12 | 20 | MC-HC |
| C51 | S-Cigarettes | Male | 20 | 15 | 5 | 0.35 | 8 | 0 | 9 | 17 | MC-HC |
| C55 | S-Cigarettes | Male | 20 | 16 | 4 | 0.95 | 1 | 0 | 7 | 8 | MC-HC |
| C75 | S-Cigarettes | Male | 27 | 20 | 7 | 0.5 | 4 | 0 | 0 | 4 | NC-LC |
| C76 | S-Cigarettes | Male | 38 | 17 | 21 | 0.85 | 9 | 0 | 2 | 11 | MC-HC |
| M11 | S-Medwakh | Male | 24 | 17 | 7 | 0.11 | 4 | 0 | 0 | 4 | NC-LC |
| M17 | S-Medwakh | Male | 23 | 19 | 4 | 0.05 | 0 | 1 | 0 | 1 | NC-LC |
| M23 | S-Medwakh | Male | 24 | 22 | 2 | 0.47 | 0 | 0 | 8 | 8 | MC-HC |
| M29 | S-Medwakh | Male | 23 | 22 | 1 | 0.46 | 0 | 2 | 0 | 2 | NC-LC |
| M31 | S-Medwakh | Male | 28 | 26 | 2 | 0.74 | 3 | 0 | 0 | 3 | NC-LC |
| M52 | S-Medwakh | Male | 21 | 12 | 9 | 0.27 | 5 | 4 | 2 | 11 | MC-HC |
| M59 | S-Medwakh | Male | 18 | 10 | 8 | 0.22 | 0 | 1 | 4 | 5 | MC-HC |
| M64 | S-Medwakh | Male | 20 | 9 | 11 | 0.42 | 1 | 0 | 2 | 3 | NC-LC |
| M68 | S-Medwakh | Male | 27 | 14 | 13 | 0.8 | 6 | 2 | 2 | 10 | MC-HC |
| M77 | S-Medwakh | Male | 33 | 27 | 6 | 0.23 | 3 | 0 | 6 | 9 | MC-HC |
| SH14 | S-Shisha | Male | 24 | 19 | 5 | 0.22 | 1 | 0 | 11 | 12 | MC-HC |
| SH28 | S-Shisha | Male | 23 | 16 | 7 | 0.54 | 2 | 4 | 4 | 10 | MC-HC |
| SH42 | S-Shisha | Male | 54 | 52 | 2 | 0.57 | 2 | 1 | 2 | 5 | MC-HC |
| SH44 | S-Shisha | female | 27 | 22 | 5 | 0.4 | 0 | 4 | 1 | 5 | MC-HC |
| SH56 | S-Shisha | Male | 19 | 15 | 4 | 0.39 | 1 | 1 | 0 | 2 | NC-LC |
| SH60 | S-Shisha | Male | 20 | 18 | 2 | 0.14 | 8 | 0 | 0 | 8 | MC-HC |
| SH61 | S-Shisha | Male | 38 | 23 | 15 | 0.5 | 0 | 1 | 0 | 1 | NC-LC |
| SH62 | S-Shisha | Male | 44 | 24 | 20 | 0.19 | 0 | 3 | 1 | 4 | NC-LC |
| SH63 | S-Shisha | female | 20 | 18 | 2 | 0.13 | 0 | 0 | 11 | 11 | MC-HC |
| SH70 | S-Shisha | Male | 22 | 22 | 1 | 0.58 | 0 | 0 | 0 | 0 | NC-LC |
| X3 | Non-smoker | Male | 24 | 0 | 0 | 0.18 | 0 | 0 | 0 | 0 | NC-LC |
| X6 | Non-smoker | female | 47 | 0 | 0 | 0.11 | 4 | 4 | 7 | 15 | MC-HC |
| X15 | Non-smoker | Male | 62 | 0 | 0 | 0.3 | 0 | 0 | 2 | 2 | NC-LC |
| X16 | Non-smoker | female | 52 | 0 | 0 | 0.16 | 0 | 1 | 0 | 1 | NC-LC |
| X32 | Non-smoker | Male | 24 | 0 | 0 | 0.22 | 0 | 0 | 0 | 0 | NC-LC |
| X46 | Non-smoker | female | 34 | 0 | 0 | 0.76 | 0 | 0 | 8 | 8 | MC-HC |
| X84 | Non-smoker | Male | 23 | 0 | 0 | 0.75 | 0 | 1 | 0 | 1 | NC-LC |
| X87 | Non-smoker | Male | 29 | 0 | 0 | 0.37 | 3 | 6 | 0 | 9 | MC-HC |
| X89 | Non-smoker | Male | 44 | 0 | 0 | 0.14 | 0 | 1 | 2 | 3 | NC-LC |
| X92 | Non-smoker | Male | 46 | 0 | 0 | 0.02 | 3 | 0 | 1 | 4 | NC-LC |

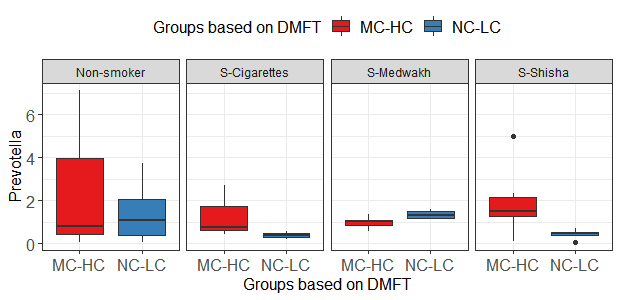
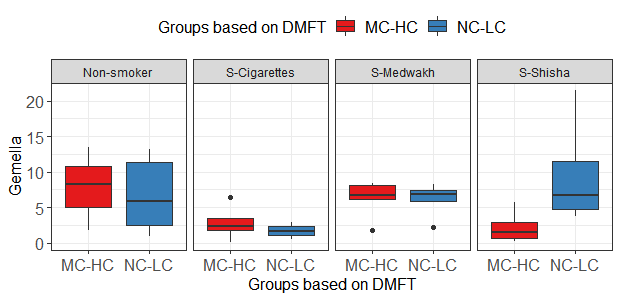
**Supplementary Table 2**. The relative abundance (%) of phyla detected in the supragingival plaque samples from non-smokers, smokers of cigarettes, medwakh and shisha.

|  |  |
| --- | --- |
| Smoking group | Phyla |
| **Relative abundance (%)**  **Mean ± Std. Deviation** | |
| Non-smokers | *Firmicutes* | 51.22 ± | 22.66 |
| *Proteobacteria* | 26.24 ± | 22.11 |
| *Fusobacteria* | 8.01 ± | 6.11 |
| *Bacteroidetes* | 11.97 ± | 7.30 |
| *Candidatus Saccharibacteria* | 1.24 ± | 1.18 |
| *Actinobacteria* | 0.79 ± | 0.74 |
| *Spirochaetes* | 0.40 ± | 0.60 |
| *Tenericutes* | 0.06 ± | 0.07 |
| Cigarettes smokers | *Firmicutes* | 65.56 ± | 16.17 |
| *Proteobacteria* | 18.02 ± | 10.31 |
| *Fusobacteria* | 7.14 ± | 4.72 |
| *Bacteroidetes* | 7.31 ± | 3.60 |
| *Candidatus Saccharibacteria* | 0.84 ± | 0.75 |
| *Actinobacteria* | 0.57 ± | 0.22 |
| *Spirochaetes* | 0.38 ± | 0.90 |
| *Tenericutes* | 0.10 ± | 0.14 |
| Medwakh smokers | *Firmicutes* | 65.30 ± | 14.90 |
| *Proteobacteria* | 14.77 ± | 9.88 |
| *Fusobacteria* | 8.95 ± | 2.70 |
| *Bacteroidetes* | 9.25 ± | 6.27 |
| *Candidatus Saccharibacteria* | 0.79 ± | 0.51 |
| *Actinobacteria* | 0.71 ± | 0.39 |
| *Spirochaetes* | 0.10 ± | 0.13 |
| *Tenericutes* | 0.04 ± | 0.03 |
| Shisha smokers | *Firmicutes* | 55.19 ± | 12.08 |
| *Proteobacteria* | 24.55 ± | 5.82 |
| *Fusobacteria* | 8.14 ± | 5.98 |
| *Bacteroidetes* | 10.01 ± | 4.90 |
| *Candidatus Saccharibacteria* | 0.78 ± | 0.82 |
| *Actinobacteria* | 0.94 ± | 0.45 |
| *Spirochaetes* | 0.19 ± | 0.22 |
| *Tenericutes* | 0.05 ± | 0.04 |

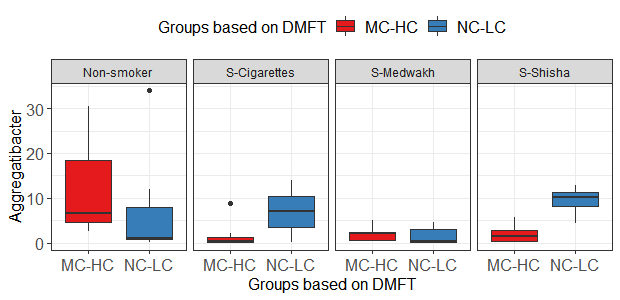
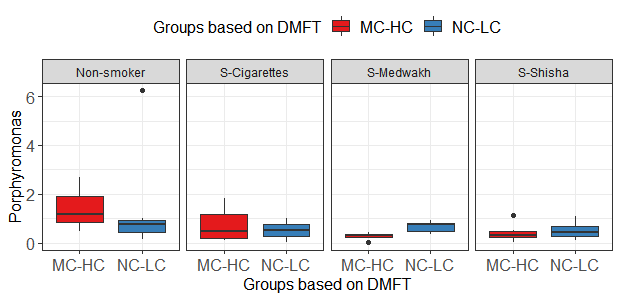


**Supplementary Figure 1. The relative abundance (%) of phyla detected in 40 supragingival plaque samples**

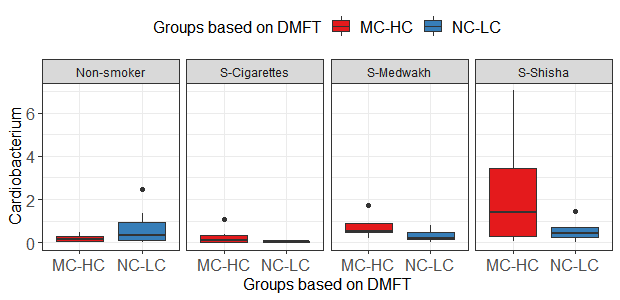
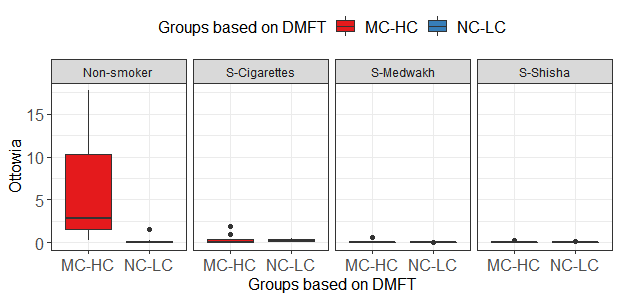
**A B**

** **

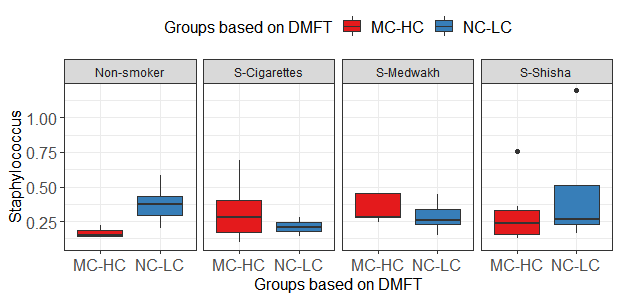
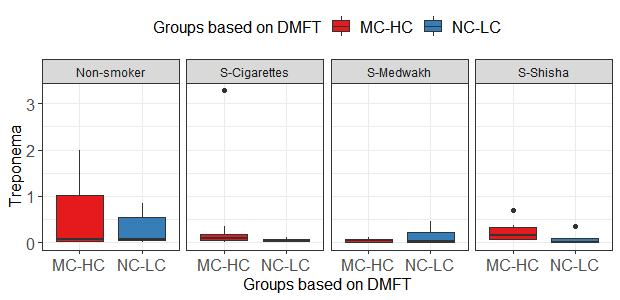
**C D**

** **

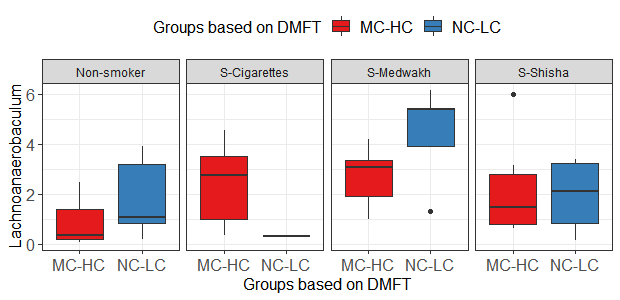
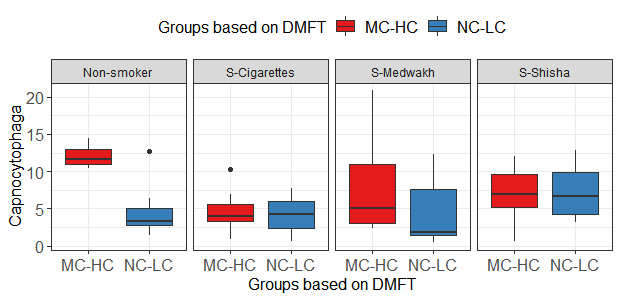
**E F**

** **

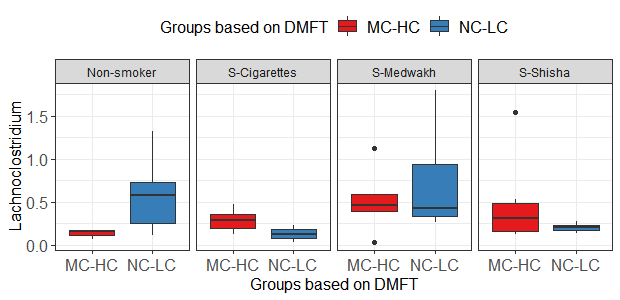
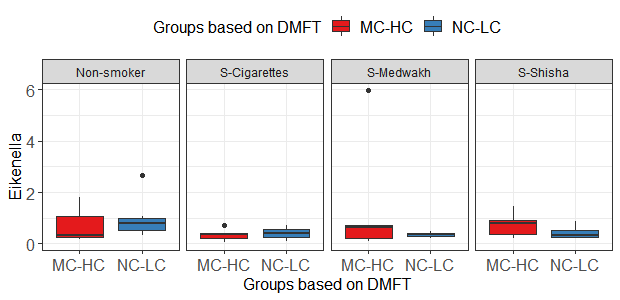
**G E**

** **

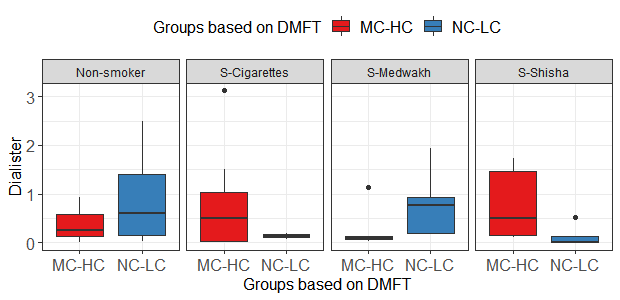
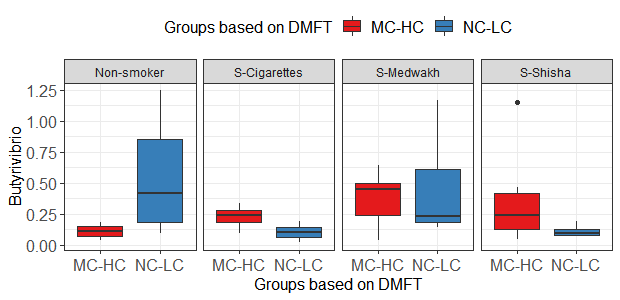
**H I**

** **

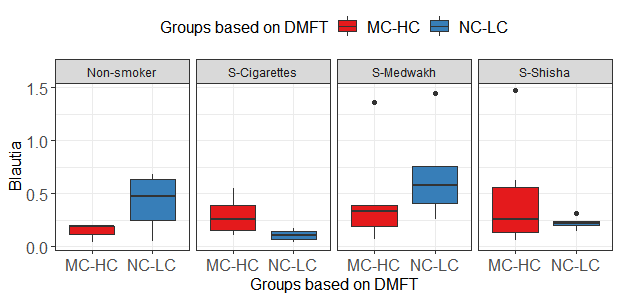
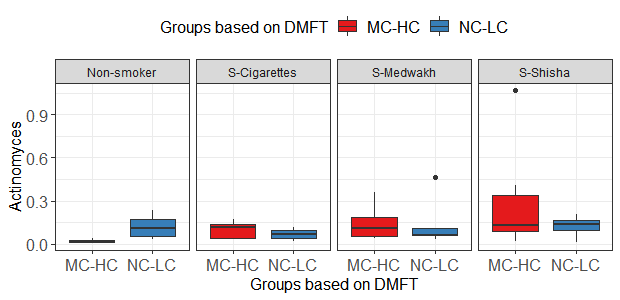
**J K**

** **

**L M**

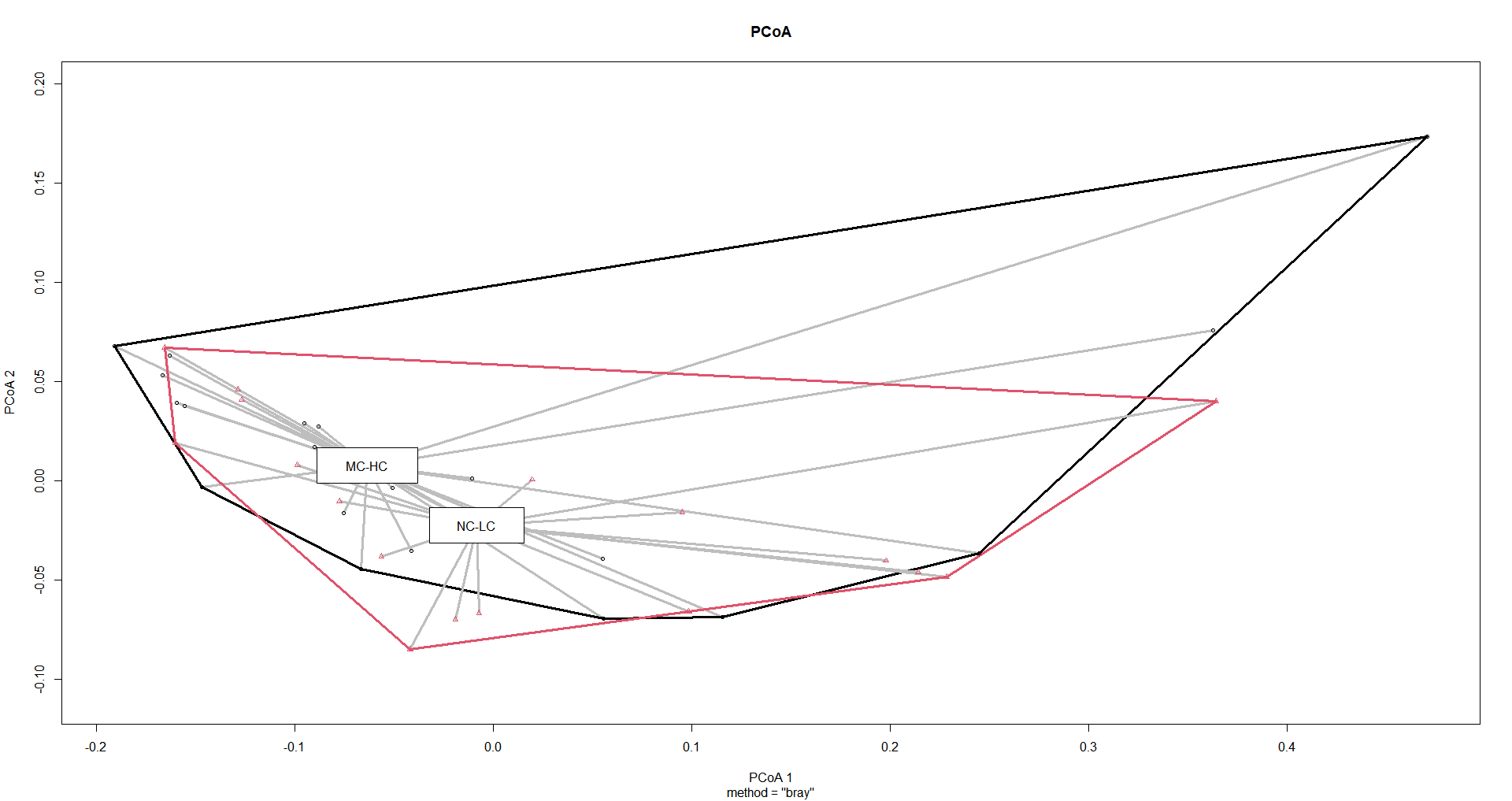
** **

**O P**

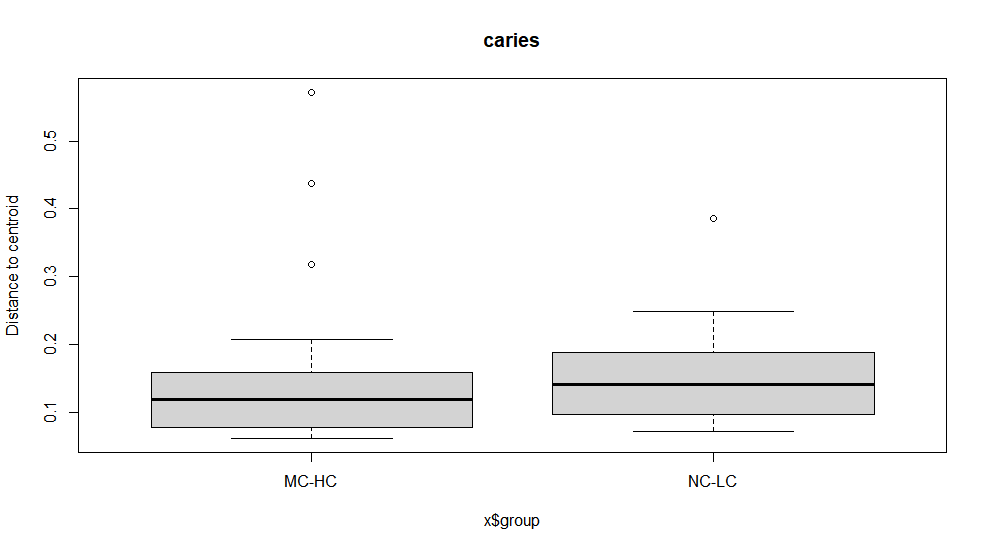
** **

**Supplementary Figure 2.** Comparison of the relative abundance (%) of the major genera detected in the supragingival plaque samples; collected from subjects with no or low (NC-LC) caries and moderate-high (MC-HC) caries, in smokers of different types of tobacco and non-smokers. Box plots show Q1-median-Q3 with data range. Black dots are outlier values. Only the genera (n=16) that were significantly different between the study groups considering both smoking and caries are shown in the figure.

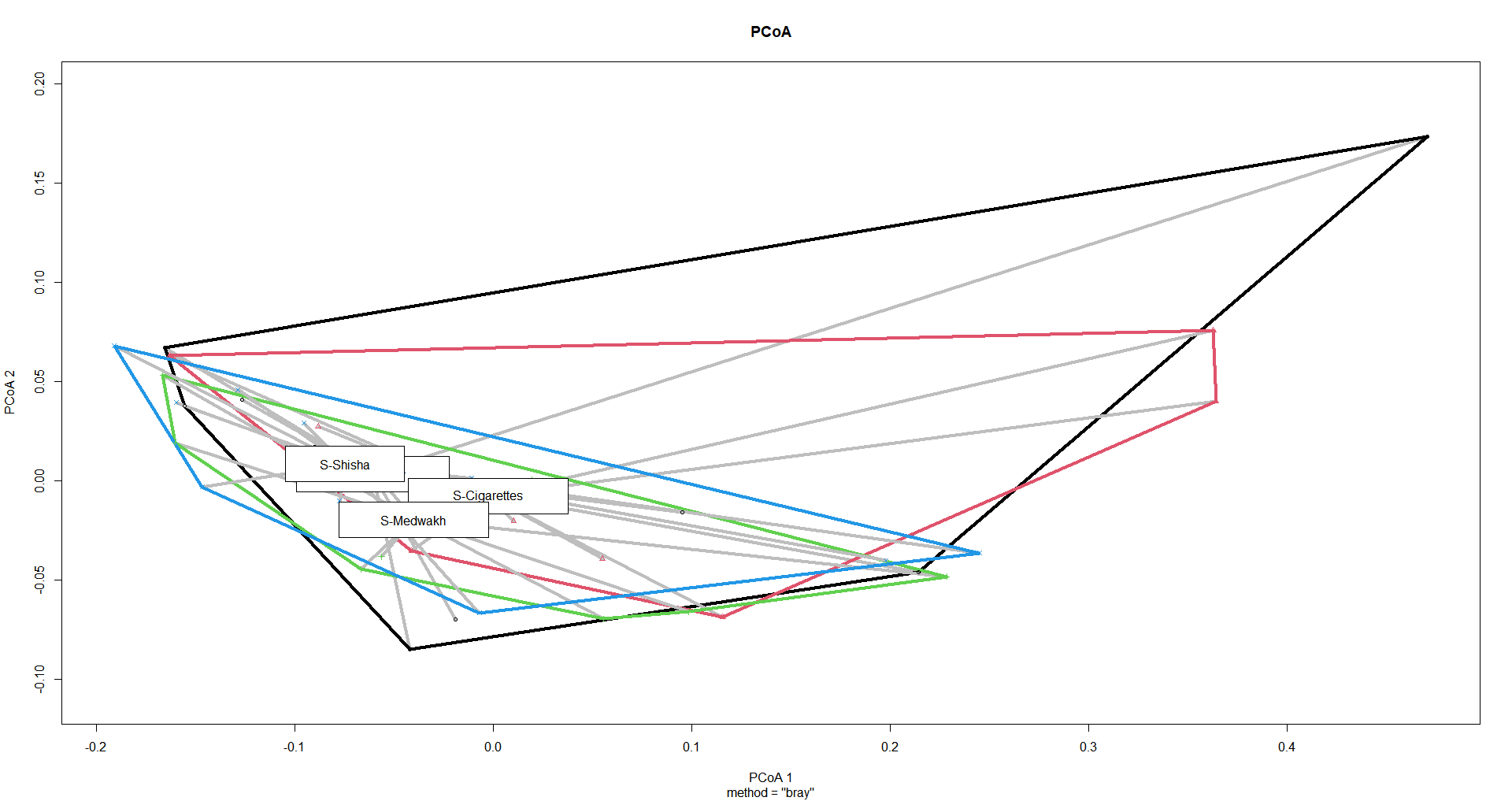
**A**

****

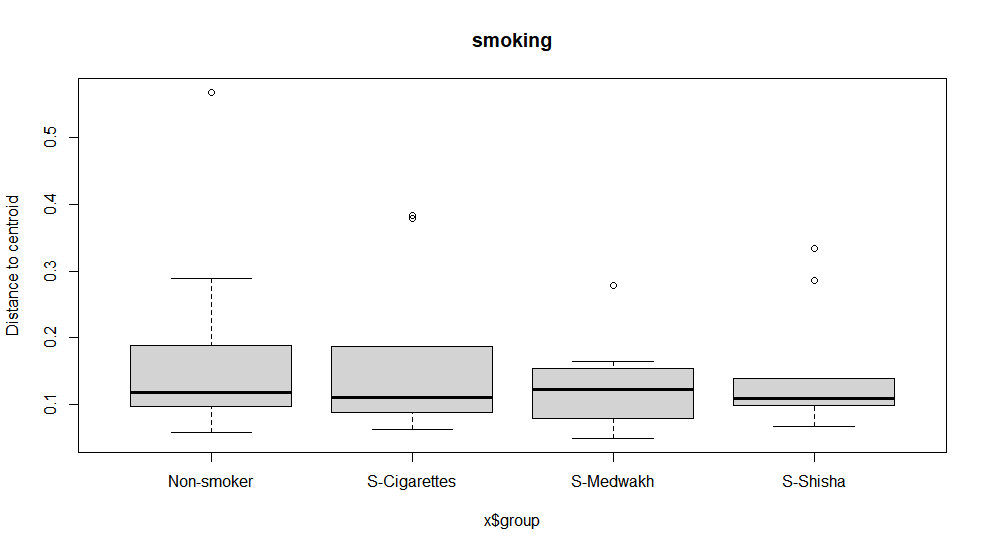
**B**

****

**C**

****

**D**



**Supplementary Figure 3. Beta diversity measured using Bray Curtis index. The samples were clustered based on the index according to the dental caries (A-B) and tobacco smoking (C-D). No significant difference was found between the groups.**