

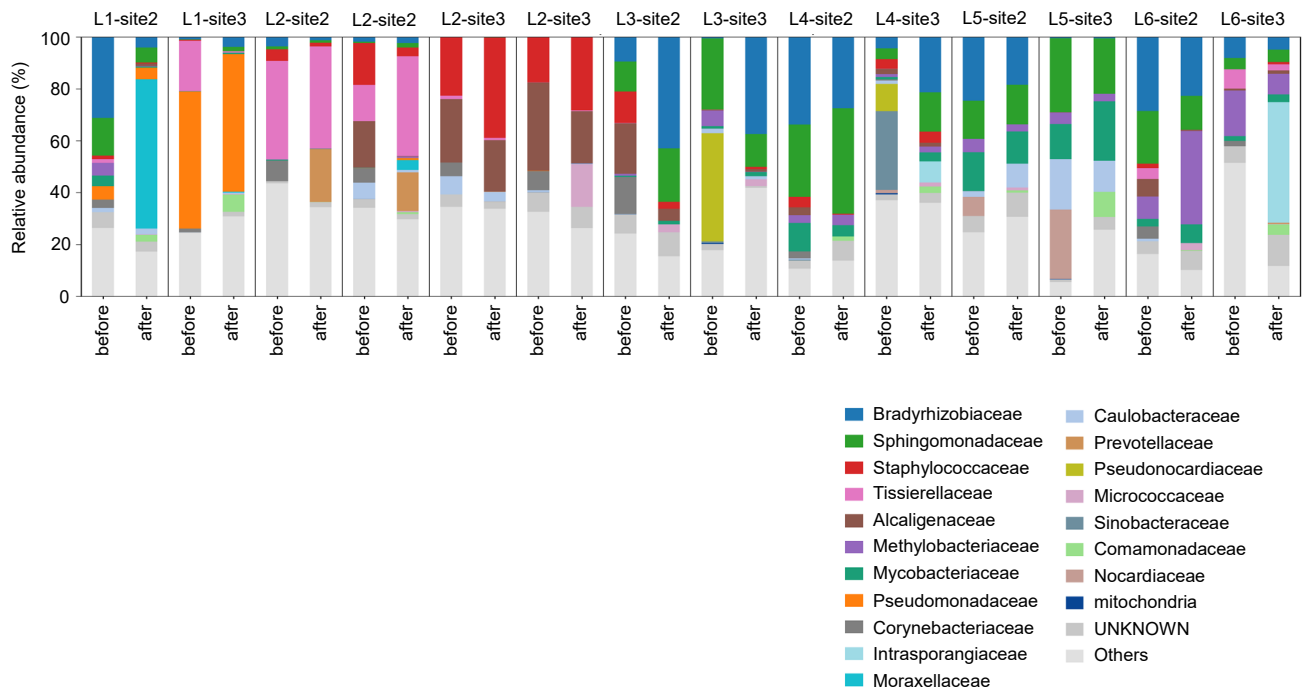


Figure S1. Paired comparison of bacterial community composition before and after cleaning at each sampling site. The top 15 bacterial families are shown in color, and the remaining families are grouped as Others.

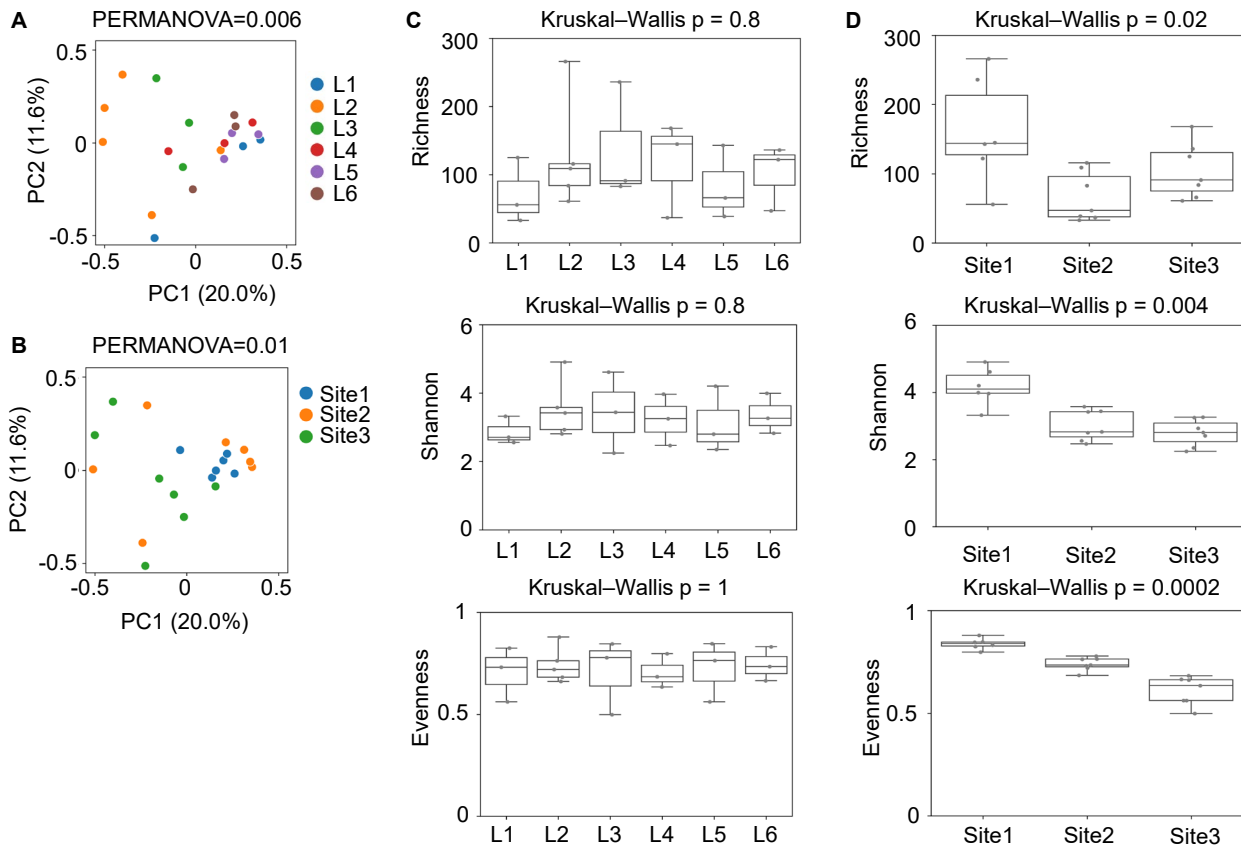


Figure S2. Diversity of the bacterial community based on rarefied ASV data. **(A)** β -diversity of bacterial communities across toilets. All samples before cleaning ($n = 21$) are shown. Colors indicate different toilets. PERMANOVA p -values are shown. **(B)** β -diversity of bacterial communities across sampling sites. All samples before cleaning ($n = 21$) are shown. Colors indicate different toilets. PERMANOVA p -values are shown. **(C)** α -diversity of bacterial communities across toilets. Richness, Shannon index, and Evenness are shown in the upper, middle, and lower panels, respectively ($n = 2-4$). Kruskal-Wallis p -values are shown. **(D)** α -diversity of bacterial communities across sampling sites. Richness, Shannon index, and Evenness are shown in the upper, middle, and lower panels, respectively ($n = 7$). Kruskal-Wallis p -values are shown. To account for differences in sequencing depth among samples, ASV count tables were rarefied to the minimum read depth across all samples by random subsampling prior to diversity analyses.

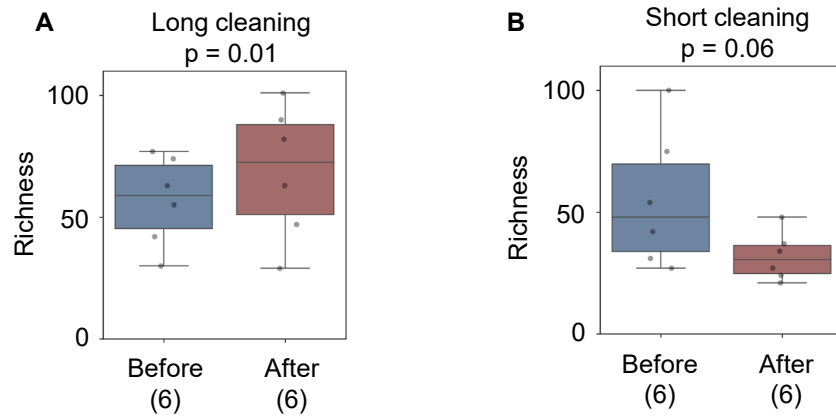


Figure S3. Comparison of Richness before and after cleaning. (A) Comparison of Richness before and after long-duration cleaning. Long-duration cleaning includes samples with cleaning times of 40 and 60 s. A paired one-sided t-test was performed to assess whether Richness after cleaning was greater than that before cleaning, and the corresponding p-value is shown. (B) Comparison of Richness before and after short-duration cleaning. Short-duration cleaning includes samples with cleaning times of 2, 10, and 20 s. A paired one-sided t-test was performed to assess whether Richness before cleaning was greater than that after cleaning, and the corresponding p-value is shown. Numbers in parentheses indicate the sample size.