1. Bioinformatics Analysis

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| **Standard Analysis** |
| Data split and reads merging |
| Data quality control: data filtration and chimera removal |
| OTUs cluster and phylogenetic relationship construction |
| Species annotation |
| Alpha diversity analysis (Observed species, Goods coverage, Chao1, ACE, Shannon, Simpson Index) |
| Beta diversity analysis (Unifrac distance heatmap, PCA, PCoA, UPGMA) |
| Ternaryplot |
| NMDS analysis |
| LefSE analysis |
| Metastats analysis |
| Species T-test analysis |
| MRPP, Anosim, Adonis, Amova analysis |
| Comparative analysis of alpha diversity indices |
| Comparative analysis of beta diversity indices |