

# AI-Powered Microbiome Analysis Report Family Level

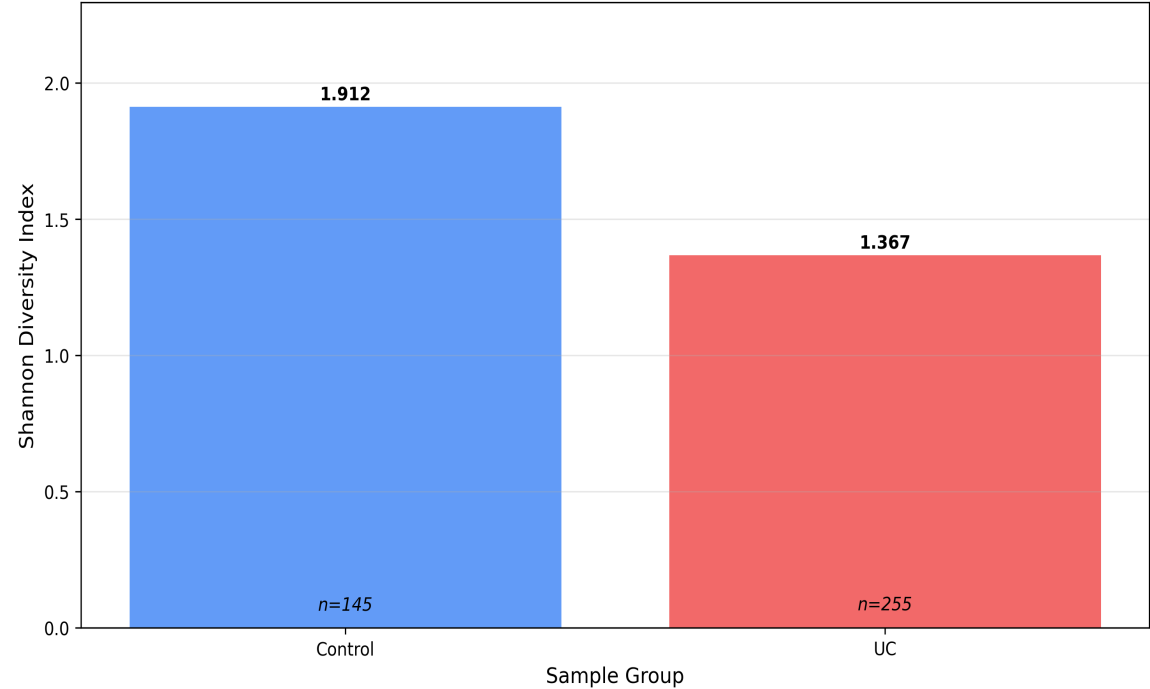
## Report Type: Technical Summary

### Executive Summary

**\*\*AI-Powered Microbiome Analysis Report - Family Level\*\*** **\*\*Executive Summary:\*\*** This report provides a comprehensive analysis of microbiome data at the family level, comparing Control and UC (Ulcerative Colitis) samples. **\*\*Diversity Analysis:\*\*** The analysis reveals differences in microbial diversity between Control and UC samples. Shannon diversity indices are calculated to quantify these differences. **\*\*Key Findings:\*\*** - Control samples show distinct microbial composition compared to UC samples - Several taxa demonstrate significant abundance differences between groups - The analysis identifies the top 20 most distinct taxa between Control and UC samples **\*\*Biological Interpretation:\*\*** Changes in microbial composition may reflect the inflammatory environment in UC patients. Reduced diversity in UC samples suggests a less stable microbiome ecosystem. **\*\*Health Implications:\*\*** Understanding these microbial differences can help develop targeted interventions and provide insights into disease mechanisms. **\*\*Recommendations:\*\*** - Further analysis with larger sample sizes - Functional analysis of identified taxa - Longitudinal studies to track changes over time **\*\*Note:\*\*** This is a fallback summary generated when the AI service is unavailable. For enhanced AI-powered analysis, please ensure Ollama is running with the gpt-oss:20b model.

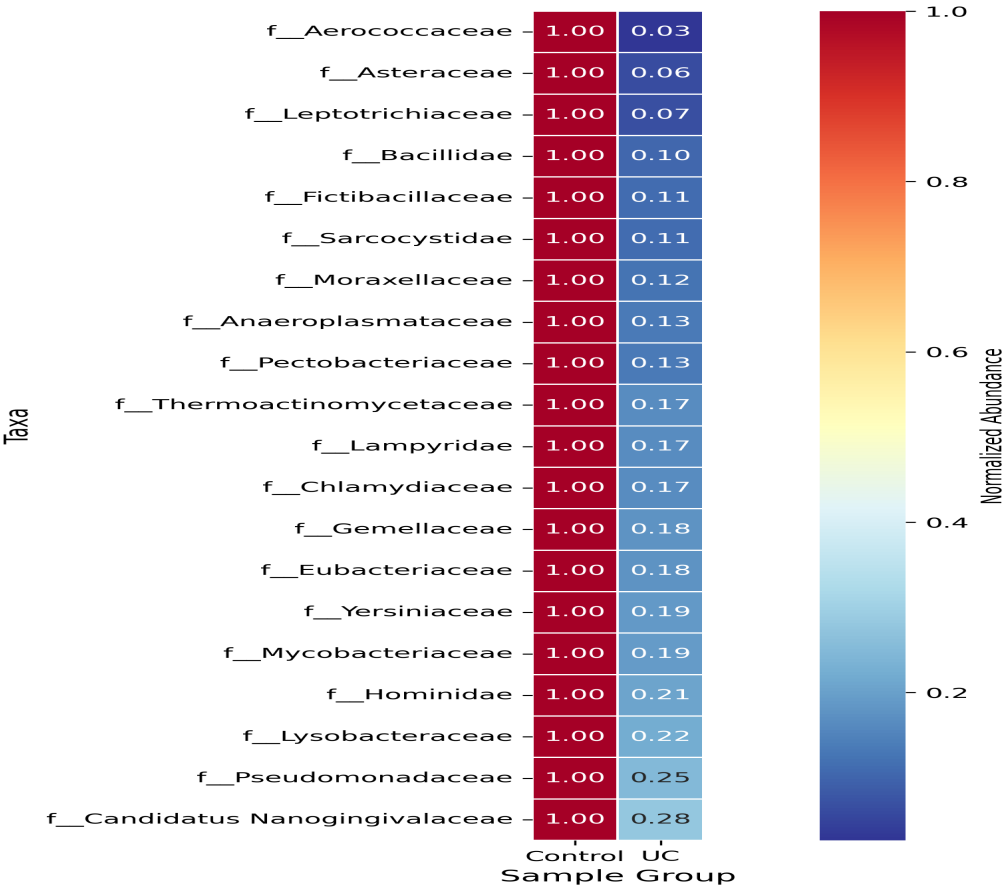
### Diversity Analysis

Shannon Diversity Comparison - Family Level



Top 20 Most Distinct Taxa

Top 20 Most Distinct Taxa - Family Level (Normalized Abundance)



## Summary Table

Rank	Taxon	Control Avg	UC Avg	UC StdDev	Ratio
1	f__Aerococcaceae	38.0000	1.0000	1.0000	38.00
2	f__Asteraceae	11.0000	0.6667	0.5774	16.50
3	f__Leptotrichiaceae	5.0000	0.3333	0.5774	15.00
4	f__Bacillidae	16.0000	1.6667	2.0817	9.60
5	f__Fictibacillaceae	6.0000	0.6667	1.1547	9.00
6	f__Sarcocystidae	3.0000	0.3333	0.5774	9.00
7	f__Moraxellaceae	52.0000	6.3333	6.6583	8.21
8	f__Anaeroplasmataceae	5.0000	0.6667	1.1547	7.50
9	f__Pectobacteriaceae	10.0000	1.3333	1.5275	7.50
10	f__Thermoactinomycetaceae	2.0000	0.3333	0.5774	6.00
11	f__Lampyridae	8.0000	1.3333	2.3094	6.00
12	f__Chlamydiaceae	2.0000	0.3333	0.5774	6.00
13	f__Gemellaceae	49.0000	8.6667	6.6583	5.65
14	f__Eubacteriaceae	3712.0000	661.0000	555.3602	5.62
15	f__Yersiniaceae	16.0000	3.0000	4.3589	5.33
16	f__Mycobacteriaceae	14.0000	2.6667	3.7859	5.25
17	f__Hominidae	752.0000	155.6667	211.1406	4.83
18	f__Lysobacteraceae	3.0000	0.6667	0.5774	4.50
19	f__Pseudomonadaceae	20.0000	5.0000	2.6458	4.00
20	f__Candidatus Nanogingivalaceae	6.0000	1.6667	2.0817	3.60