**Supplementary file 1.** **The relative abundance of gut bacteria and fungi at the phylum and genera levels.**

**Supplementary file 1a. The relative abundance of bacteria in CL and CON groups at phylum levels**

|  |  |  |  |
| --- | --- | --- | --- |
| Species name | CL-mean(%) | CON-mean(%) | P\_value |
| *p\_\_Firmicutes* | 49.83 | 32.37 | 0.003876 |
| *p\_\_Bacteroidota* | 27.08 | 51.25 | 0.000939 |
| *p\_\_Proteobacteria* | 14.78 | 4.418 | 0.01008 |
| *p\_\_Campylobacterota* | 7.648 | 4.838 | 0.8748 |
| *p\_\_Verrucomicrobiota* | 0.007135 | 2.867 | 0.000682 |
| *p\_\_Actinobacteriota* | 0 | 2.461 | 0.00041 |
| *p\_\_Deferribacterota* | 0 | 1.009 | 0.00146 |
| *p\_\_Desulfobacterota* | 0.6597 | 0.03139 | 0.000852 |
| *p\_\_Cyanobacteria* | 0 | 0.6816 | 0.00146 |

**Supplementary file 1b.** **The relative abundance of bacteria in CL and CON groups at genera level**

|  |  |  |  |
| --- | --- | --- | --- |
| Species name | CL-mean(%) | CON-mean(%) | P\_value |
| *g\_\_Bacteroides* | 25.7 | 9.822 | 0.01359 |
| *g\_\_norank\_f\_\_Muribaculaceae* | 0 | 28.22 | 0.00041 |
| *g\_\_Lactobacillus* | 11.53 | 3.751 | 0.02395 |
| *g\_\_Escherichia-Shigella* | 11.81 | 2.311 | 0.01359 |
| *g\_\_Helicobacter* | 7.648 | 4.838 | 0.8748 |
| *g\_\_Faecalibaculum* | 10 | 1.242 | 0.005385 |
| *g\_\_Ligilactobacillus* | 6.333 | 4.887 | 0.06608 |
| *g\_\_Clostridium\_sensu\_stricto\_1* | 9.278 | 0.9147 | 0.01779 |
| *g\_\_unclassified\_f\_\_Lachnospiraceae* | 1.645 | 3.812 | 0.06608 |
| *g\_\_Parasutterella* | 2.555 | 1.177 | 0.01813 |
| *g\_\_Erysipelatoclostridium* | 1.127 | 2.219 | 0.0829 |
| *g\_\_Prevotellaceae\_UCG-001* | 0 | 3.331 | 0.00041 |
| *g\_\_norank\_f\_\_norank\_o\_\_Clostridia\_UCG-014* | 0.9409 | 2.364 | 0.2701 |
| *g\_\_Lachnospiraceae\_NK4A136\_group* | 1.175 | 1.757 | 0.634 |
| *g\_\_Akkermansia* | 0.007135 | 2.867 | 0.000682 |
| *g\_\_Parabacteroides* | 1.38 | 1.15 | 1 |
| *g\_\_Rikenellaceae\_RC9\_gut\_group* | 0 | 2.486 | 0.00041 |
| *g\_\_unclassified\_o\_\_Oscillospirales* | 0 | 2.376 | 0.03247 |
| *g\_\_Alloprevotella* | 0 | 2.273 | 0.00041 |
| *g\_\_Anaerotruncus* | 1.741 | 0.4362 | 0.4295 |
| *g\_\_Muribaculum* | 0 | 2.142 | 0.00041 |
| *g\_\_Dubosiella* | 0 | 2.092 | 0.00041 |
| *g\_\_Bifidobacterium* | 0 | 1.967 | 0.00041 |
| *g\_\_Clostridioides* | 1.172 | 0.7435 | 0.09847 |
| *g\_\_Alistipes* | 0 | 1.508 | 0.00041 |
| *g\_\_unclassified\_c\_\_Bacilli* | 0.5903 | 0.8662 | 0.3973 |
| *g\_\_Mucispirillum* | 0 | 1.009 | 0.00146 |
| *g\_\_Romboutsia* | 0.3582 | 0.4367 | 0.7929 |
| *g\_\_uncultured\_f\_\_uncultured\_o\_\_Rhodospirillales* | 0.1689 | 0.6055 | 0.05834 |
| *g\_\_unclassified\_f\_\_Ruminococcaceae* | 0.5584 | 0.157 | 0.08244 |
| *g\_\_Bilophila* | 0.6597 | 0.03139 | 0.000852 |
| *g\_\_norank\_f\_\_norank\_o\_\_Gastranaerophilales* | 0 | 0.6816 | 0.00146 |
| *g\_\_Roseburia* | 0.478 | 0.1213 | 0.8663 |
| *g\_\_Blautia* | 0.3701 | 0.1422 | 0.1409 |
| *g\_\_unclassified\_f\_\_Oscillospiraceae* | 0.1779 | 0.2997 | 0.02354 |
| *g\_\_uncultured\_f\_\_Oscillospiraceae* | 0.303 | 0.1717 | 0.2146 |
| *g\_\_Eubacterium\_siraeum\_group* | 0.3743 | 0.07373 | 0.04048 |
| *g\_\_Ruminococcus* | 0 | 0.3824 | 0.00041 |
| *g\_\_norank\_f\_\_Eubacterium\_coprostanoligenes\_group* | 0.1037 | 0.2778 | 0.9163 |
| *g\_\_unclassified\_f\_\_Atopobiaceae* | 0 | 0.3691 | 0.00041 |
| *g\_\_norank\_f\_\_Ruminococcaceae* | 0.3648 | 0.001427 | 0.2143 |
| *g\_\_Enterococcus* | 0.294 | 0.06421 | 0.003619 |
| *g\_\_ASF356* | 0 | 0.3311 | 0.03247 |
| *g\_\_Odoribacter* | 0 | 0.3196 | 0.00041 |
| *g\_\_A2* | 0.2321 | 0.04091 | 0.5465 |
| *g\_\_Lachnoclostridium* | 0.185 | 0.06326 | 0.263 |
| *g\_\_Colidextribacter* | 0.03615 | 0.2121 | 0.03764 |
| *g\_\_unclassified\_f\_\_Enterobacteriaceae* | 0.04804 | 0.1651 | 0.2497 |
| *g\_\_Enterobacter* | 0.04233 | 0.1475 | 0.2172 |
| *g\_\_Coprobacillus* | 0.1789 | 0 | 0.1709 |
| *g\_\_Eubacterium\_xylanophilum\_group* | 0.04566 | 0.1241 | 0.1706 |
| *g\_\_Ruminococcus\_torques\_group* | 0 | 0.1603 | 0.00041 |
| *g\_\_Eubacterium\_nodatum\_group* | 0 | 0.1408 | 0.00041 |
| *g\_\_Incertae\_Sedis* | 0.1123 | 0.0195 | 0.007276 |
| *g\_\_Proteus* | 0.1194 | 0.003805 | 0.000819 |
| *g\_\_Enterorhabdus* | 0 | 0.1218 | 0.000405 |
| *g\_\_Marvinbryantia* | 0 | 0.1132 | 0.00146 |
| *g\_\_Oscillibacter* | 0.009513 | 0.1013 | 0.07475 |
| *g\_\_unclassified\_f\_\_Erysipelatoclostridiaceae* | 0 | 0.1094 | 0.004569 |
| *g\_\_UBA1819* | 0 | 0.1089 | 0.03225 |
| *g\_\_uncultured\_f\_\_Erysipelotrichaceae* | 0 | 0.1061 | 0.001446 |

**Supplementary file 1c. The relative abundance of fungi in CL and CON groups at the phylum level**

|  |  |  |  |
| --- | --- | --- | --- |
| Species name | CL-mean(%) | CON-mean(%) | P\_value |
| *p\_\_Ascomycota* | 61.62 | 59.89 | 0.7929 |
| *p\_\_unclassified\_k\_\_Fungi* | 21.24 | 33.73 | 0.04057 |
| *p\_\_Basidiomycota* | 10.07 | 4.315 | 0.08312 |
| *p\_\_Mucoromycota* | 7.059 | 1.948 | 0.2202 |
| *p\_\_Chytridiomycota* | 0.007881 | 0.1182 | 0.1105 |

**Supplementary file 1d.** **The relative abundance of fungi in CL and CON groups at the genera level**

|  |  |  |  |
| --- | --- | --- | --- |
| Species name | CL-mean(%) | CON-mean(%) | P\_value |
| *g\_\_unclassified\_k\_\_Fungi* | 21.24 | 33.73 | 0.04057 |
| *g\_\_unclassified\_p\_\_Ascomycota* | 7.986 | 28.35 | 0.007406 |
| *g\_\_Aspergillus* | 17.96 | 9.871 | 0.03132 |
| *g\_\_Microascus* | 4.087 | 3.386 | 0.188 |
| *g\_\_Penicillium* | 5.256 | 2.012 | 0.0452 |
| *g\_\_Mucor* | 5.364 | 0.442 | 0.4825 |
| *g\_\_Candida* | 0 | 5.758 | 0.3816 |
| *g\_\_Cladosporium* | 4.156 | 0.5539 | 0.001801 |
| *g\_\_Trichoderma* | 3.138 | 1.366 | 0.1058 |
| *g\_\_Wallemia* | 4.177 | 0.2673 | 0.000785 |
| *g\_\_Claviceps* | 3.333 | 0 | 0.3816 |
| *g\_\_Saccharomyces* | 1.437 | 1.678 | 0.9575 |
| *g\_\_unclassified\_f\_\_Pleosporaceae* | 2.117 | 0.5674 | 0.6025 |
| *g\_\_Apiotrichum* | 1.196 | 1.471 | 0.9039 |
| *g\_\_Rhizopus* | 0.9233 | 1.506 | 0.8481 |
| *g\_\_Malassezia* | 0.8814 | 0.8792 | 0.6025 |
| *g\_\_unclassified\_o\_\_Microascales* | 1.423 | 0 | 0.1709 |
| *g\_\_unclassified\_o\_\_Xylariales* | 1.234 | 0 | 0.3816 |
| *g\_\_Thielaviopsis* | 0.8518 | 0.1605 | 0.3342 |
| *g\_\_Meyerozyma* | 0.3146 | 0.6774 | 1 |
| *g\_\_Letendraea* | 0 | 0.8723 | 0.3816 |
| *g\_\_Sporobolomyces* | 0.4457 | 0.3931 | 0.945 |
| *g\_\_Naganishia* | 0.4492 | 0.3121 | 0.7001 |
| *g\_\_Alternaria* | 0.7509 | 0 | 0.03247 |
| *g\_\_Hannaella* | 0.7484 | 0 | 0.3816 |
| *g\_\_Trichosporon* | 0.7272 | 0 | 0.3816 |
| *g\_\_Aureobasidium* | 0 | 0.7162 | 0.3816 |
| *g\_\_Toxicocladosporium* | 0.7014 | 0 | 0.3816 |
| *g\_\_Neosetophoma* | 0.6904 | 0 | 0.3816 |
| *g\_\_unclassified\_o\_\_Sordariales* | 0 | 0.6188 | 0.3816 |
| *g\_\_unclassified\_c\_\_Sordariomycetes* | 0.5737 | 0.005359 | 0.4881 |
| *g\_\_Scopulariopsis* | 0.3237 | 0.214 | 1 |
| *g\_\_Byssochlamys* | 0.5362 | 0 | 0.3816 |
| *g\_\_Talaromyces* | 0 | 0.5283 | 0.3816 |
| *g\_\_Simplicillium* | 0.1491 | 0.3647 | 1 |
| *g\_\_Xeromyces* | 0.5069 | 0 | 0.1709 |
| *g\_\_unclassified\_f\_\_Aspergillaceae* | 0.168 | 0.3253 | 0.3854 |
| *g\_\_unclassified\_f\_\_Nectriaceae* | 0.3449 | 0.1204 | 0.4881 |
| *g\_\_Chaetomium* | 0 | 0.4527 | 0.3816 |
| *g\_\_unclassified\_o\_\_Mucorales* | 0.4196 | 0 | 0.3816 |
| *g\_\_Megacapitula* | 0.4089 | 0 | 0.3816 |
| *g\_\_Udeniomyces* | 0 | 0.3802 | 0.3816 |
| *g\_\_Tilletia* | 0.3761 | 0 | 0.1709 |
| *g\_\_unclassified\_f\_\_Microascaceae* | 0.36 | 0 | 0.1709 |
| *g\_\_Yarrowia* | 0.3565 | 0 | 0.3816 |
| *g\_\_Filobasidium* | 0.3417 | 0 | 0.3816 |
| *g\_\_unclassified\_o\_\_Onygenales* | 0.2427 | 0.09331 | 1 |
| *g\_\_Thielavia* | 0 | 0.3108 | 0.3816 |
| *g\_\_Pichia* | 0 | 0.2976 | 0.3816 |
| *g\_\_Fusicolla* | 0 | 0.2919 | 0.3816 |
| *g\_\_Pseudogymnoascus* | 0.2894 | 0 | 0.07645 |
| *g\_\_Pithoascus* | 0.2837 | 0 | 0.3816 |
| *g\_\_Bulleromyces* | 0.2755 | 0 | 0.3816 |
| *g\_\_Trematosphaeria* | 0.2702 | 0 | 0.3816 |
| *g\_\_Coprinellus* | 0 | 0.2538 | 0.3816 |
| *g\_\_Symmetrospora* | 0 | 0.2405 | 0.3816 |
| *g\_\_Trichomerium* | 0.2298 | 0 | 0.3816 |
| *g\_\_Kernia* | 0 | 0.215 | 0.3816 |
| *g\_\_Xerochrysium* | 0.2147 | 0 | 0.3816 |
| *g\_\_Rhizomucor* | 0.1917 | 0 | 0.1709 |
| *g\_\_Starmerella* | 0.1857 | 0 | 0.3816 |
| *g\_\_Nigrospora* | 0.1623 | 0 | 0.3816 |
| *g\_\_Arthrinium* | 0.1617 | 0 | 0.3816 |
| *g\_\_Acaulium* | 0.1526 | 0 | 0.3816 |
| *g\_\_Fellomyces* | 0.1507 | 0 | 0.3816 |
| *g\_\_Lichtheimia* | 0.1491 | 0.0009457 | 0.4881 |
| *g\_\_Papiliotrema* | 0.1428 | 0 | 0.3816 |
| *g\_\_Moesziomyces* | 0.1277 | 0 | 0.3816 |
| *g\_\_unclassified\_p\_\_Chytridiomycota* | 0.007881 | 0.1182 | 0.1105 |
| *g\_\_unclassified\_o\_\_Capnodiales* | 0.1198 | 0 | 0.3816 |
| *g\_\_unclassified\_f\_\_Trichosporonaceae* | 0 | 0.1078 | 0.3816 |