Table S5. Effects of Virginiamycin and organic acids supplementation on the relative abundance (%) of the predominant microbiota (top 15) at the family level in the cecal digesta of broilers at the age of 42 days in this experiment.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Taxonomy |  | Groups 1 | SEM | *P* value |
| Phyla classification | Family classification |  | NC | PC | DOA | WOA | MOA |
| Firmicutes | Ruminococcaceae | 9.43 a | 9.16 a | 8.91 a | 11.55 a | 8.21 a | 0.55 | 0.403 |
| Lactobacillaceae | 4.93 a | 8.61 a | 8.49 a | 4.43 a | 2.81 a | 0.95 | 0.964 |
| Lachnospiraceae | 6.42 a | 7.55 a | 6.43 a | 7.93 a | 7.47 a | 0.76 | 0.202 |
| Clostridiales\_vadinBB60\_group | 0.89 a | 1.06 a | 0.98 a | 1.46 a | 1.21 a | 0.14 | 0.761 |
| Streptococcaceae | 0.700 ab | 0.015b | 0.910 a | 0.725 ab | 0.148 b | 0.041 | 0.194 |
| Erysipelotrichaceae | 1.49 a | 1.17 a | 1.44 a | 1.87 a | 3.50 a | 0.45 | 0.510 |
| Peptostreptococcaceae | 0.58 a | 0.54 a | 0.71 a | 0.84 a | 0.80 a | 0.10 | 0.892 |
| Christensenellaceae | 0.244 b | 0.338 ab | 0.431 ab | 0.631 a | 0.583 a | 0.053 | 0.094 |
| Peptococcaceae | 0.078 a | 0.070 a | 0.068 a | 0.129 a | 0.100 a | 0.012 | 0.453 |
| Enterococcaceae | 0.077 ab | 0.121 a | 0.041 b | 0.023 b | 0.013 b | 0.013 | 0.054 |
| Family\_XIII | 0.1104 a | 0.0992 a | 0.1018 a | 0.1490 a | 0.1215 a | 0.0084 | 0.334 |
| Proteobacteria | Enterobacteriaceae | 8.25 a | 1.46 b | 1.54 b | 0.57 b | 0.64 b | 0.88 | 0.016 |
| Bacteroidetes | Porphyromonadaceae | 63.87 a | 63.38 a | 65.32 a | 66.72 a | 71.97 a | 2.02 | 0.704 |
| Rikenellaceae | 0.23 a | 4.34 a | 0.27 a | 0.58 a | 0.02 a | 0.85 | 0.476 |
| Verrucomicrobia | Verrucomicrobiaceae | 0.142 a | 0 a | 0.008 a | 0 a | 0.195 a | 0.043 | 0.464 |
| Others | 0.0256 a  | 0.0209 a  | 0.0435 a  | 0.0239 a  | 0.0221 a  | 0.0016  | 0.434 |

Notes: Superscript 1: NC = negative control, basal diet and basal drinking water with no antibiotic supplementation; PC = positive control, antibiotics supplementation; DOA = NC plus diet-administered OA supplementation; WOA = NC plus water-administered OA supplementation; MOA = NC plus diet-administered and water-administered OA supplementation. Values are expressed as means with pooled SEM values. *P* value is expressed combined significance. In the same line, values with different letters are significantly different for all possible combinations of these different groups (*P* < 0.05 or *P* < 0.01), n = 8.