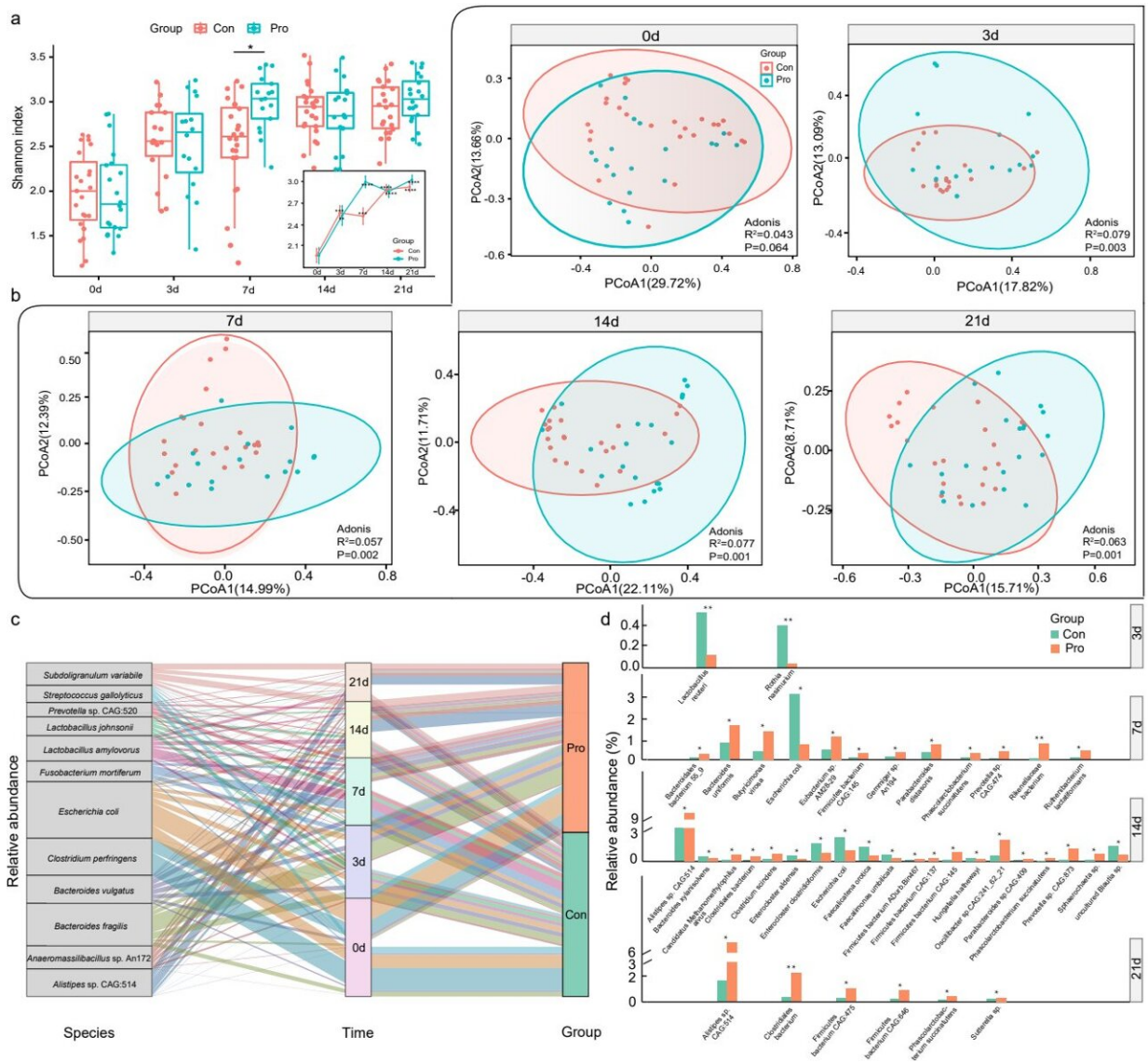
Spraying compound probiotics improves growth performance, modulates gut microbiota of suckling piglets

February 17 2023



(a) Shannon diversity index and (b) principal coordinate analysis (PCoA) score plots of probiotic (Pro) and control (Con) groups at 0, 3, 7, 14, and 21 days of age. Symbols representing samples of the two groups are shown in different colors. (c) Distribution of 12 major SGBs (each of relative abundance > 1%) across the piglets' fecal metagenomes of probiotic and control groups at different time points. Different colors represent changes in the abundance of 12 major SGBs with time. (d) Responsive SGBs showing significant differential abundance between probiotic and control groups at different time points. Light green represents the control group, and orange represents the probiotic group. Credit: Science China Press

One factor that shapes the establishment of early neonatal intestinal microbiota is environmental microbial exposure, and probiotic application has been shown to promote health and growth of piglets, but inferences drawn from different studies are largely inconsistent with rather low reproducibility.

In addition, probiotic effects are known to be treatment-specific, largely depending on the applied probiotic strains and dose. On the other hand, host-related physiological and environmental factors may also influence the health-promoting effects of probiotic supplementation.

It is therefore necessary to evaluate the specific effect of candidate probiotics in animal husbandry. This study aimed to investigate the effect of spraying a compound probiotic fermented liquid (CPFL; containing Lactobacillus casei Zhang, Lactobacillus plantarum P-8, and Lactobacillus rhamnosus Probio-M9; 1×10^9 CFU/mL) into the living environment of piglets on their early growth performance and immunity.

This work included 68 piglets, which were randomized into probiotic and control groups. Blood and fecal samples were collected at 0, 3, 7, 14, and 21 days of age. Spraying CPFL significantly reshaped the

microbiota composition of the delivery room environment, increased piglets' daily weight gain and weaning weight (P