

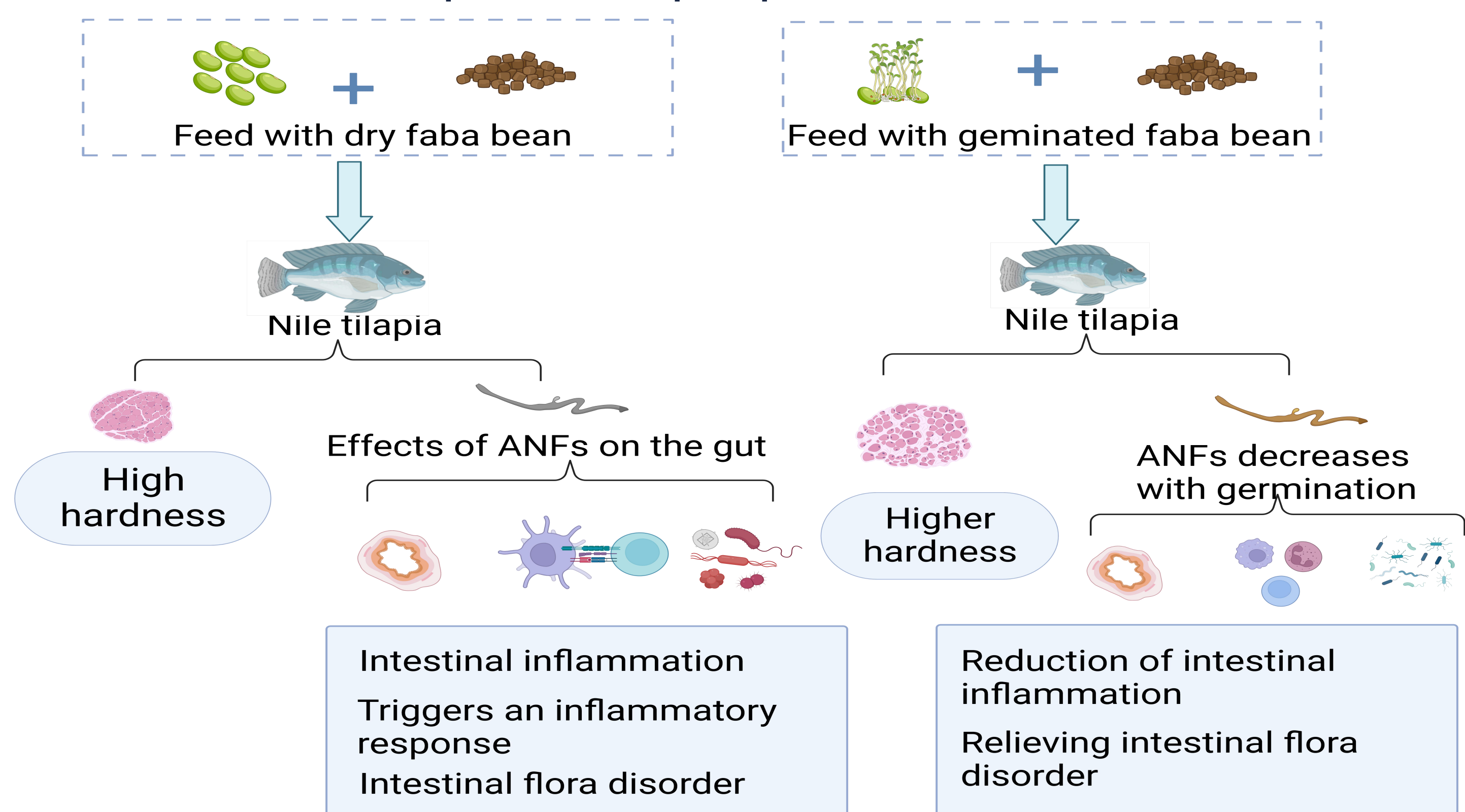


Effects of diets containing different faba bean (*Vicia faba L.*) on the intestinal health and gut microbial communities of Nile tilapia (*Oreochromis niloticus*)

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Abstract

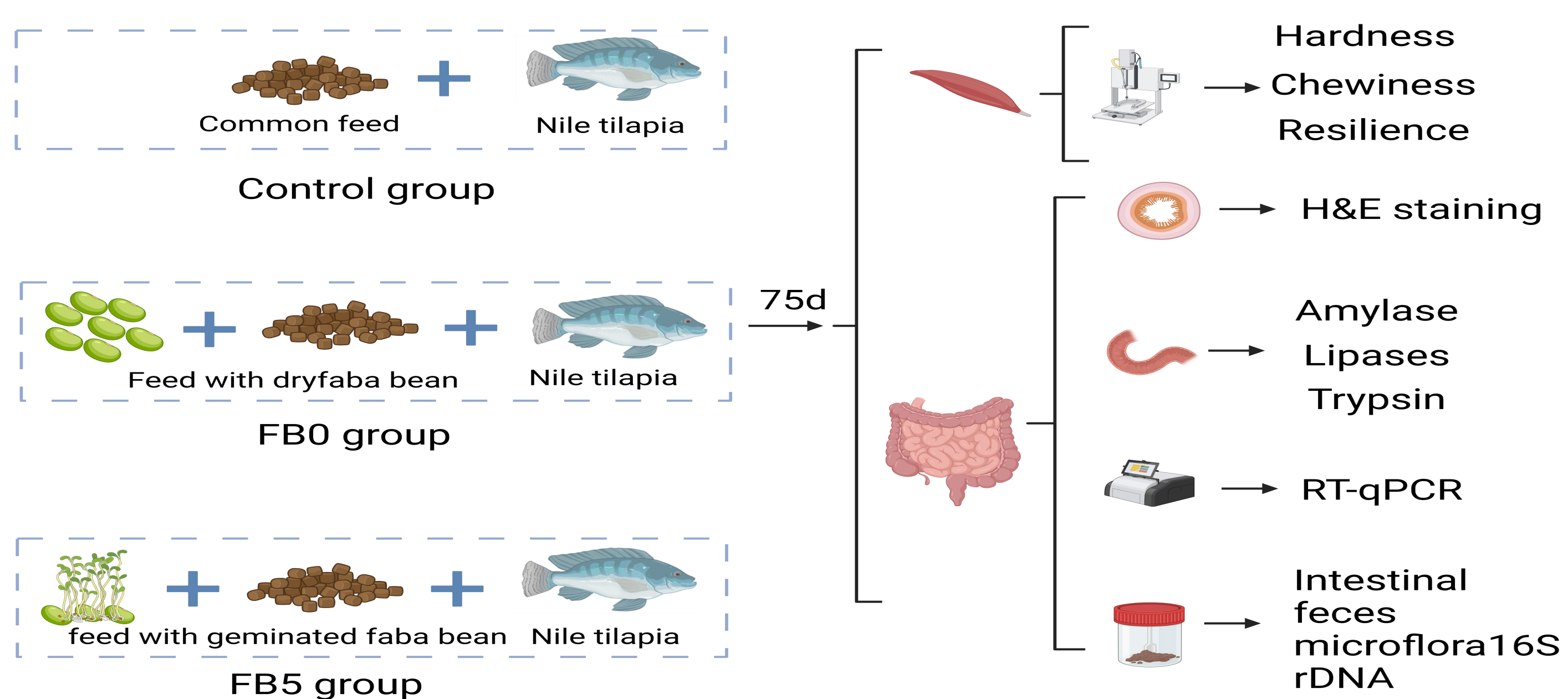
Nile tilapia fed with germinated faba beans showed **better textural quality and decreased intestinal damage**, therefore, germinated faba beans could be a potential substitute for dry faba beans in crispness tilapia production.



Introduction

- 01** Faba beans (*Vicia faba L.*) - key to crispy tilapia production, **Contains antinutritional factors**
- 02** **Inhibiting** the normal growth of fish, digestive enzyme activity and **balance of microbacteria**
- 03** **Germination**, functions as an effective treatment could remove antinutritional factors in legumes

Methods



Results

1. Germinated faba bean diet **improves muscle textural quality** in tilapia, the hardness of FB5 is 25.9% higher than FB0 and the chewiness of 27.9%

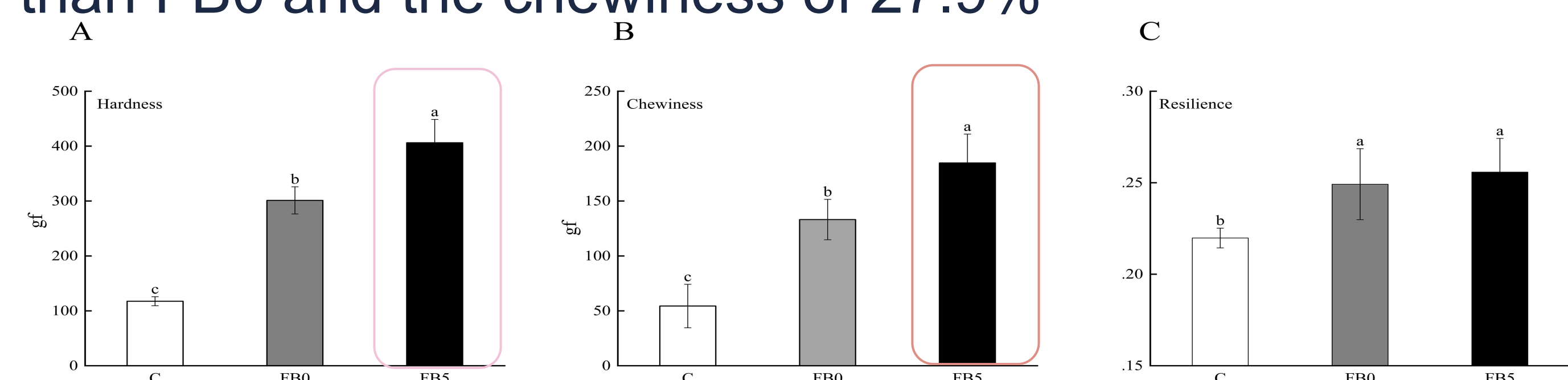


Fig.1 Muscle textural quality about hardness, chewiness and resilience.

Results

2. Germinated faba bean diet **alleviates** the gut **inflammatory response**

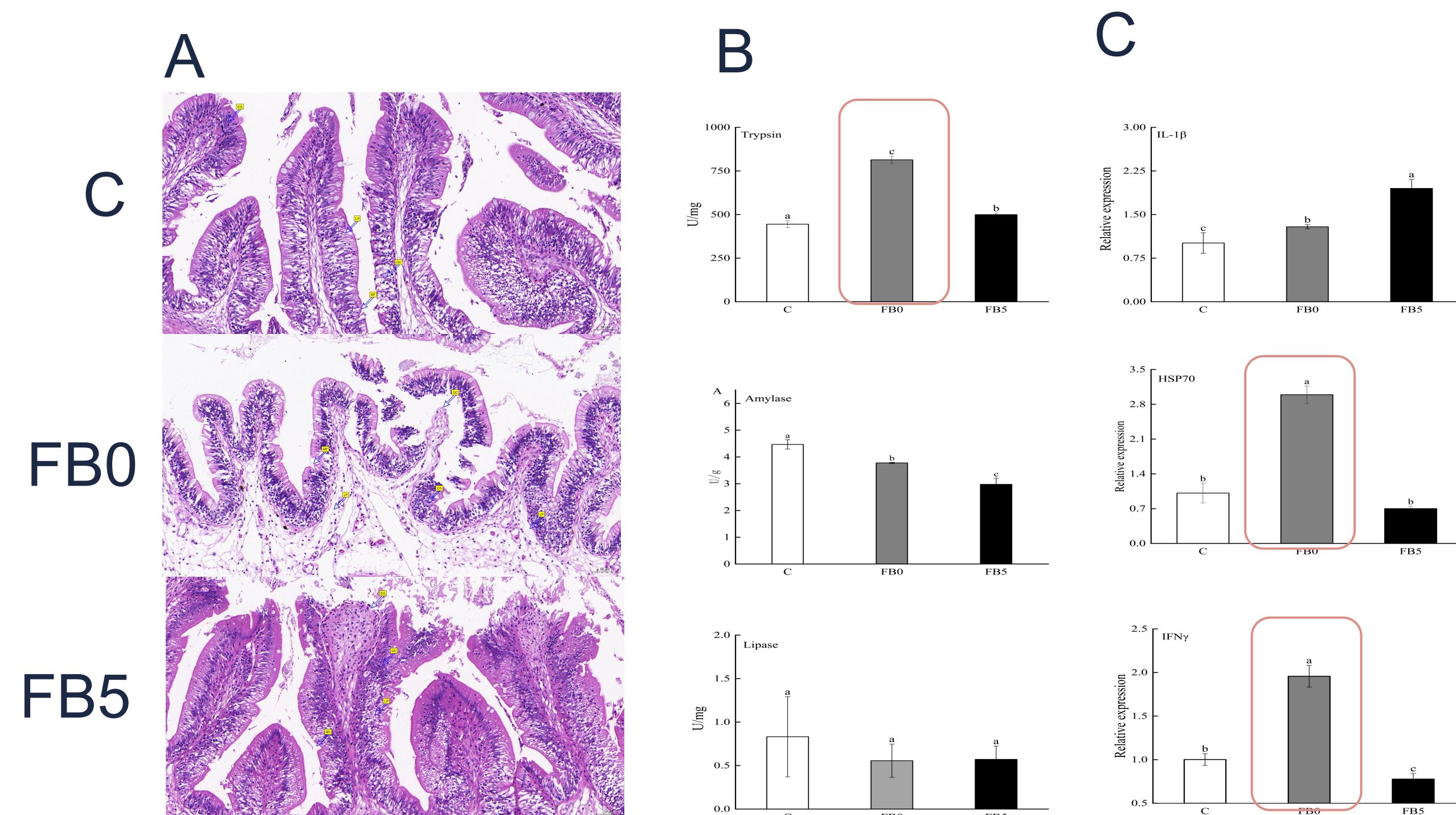


Fig.2 Microstructure observation, expression of immune-related genes and digestive enzymes of Intestine

3. Germination faba bean diet increased **intestinal microbial diversity** and enhanced metabolism

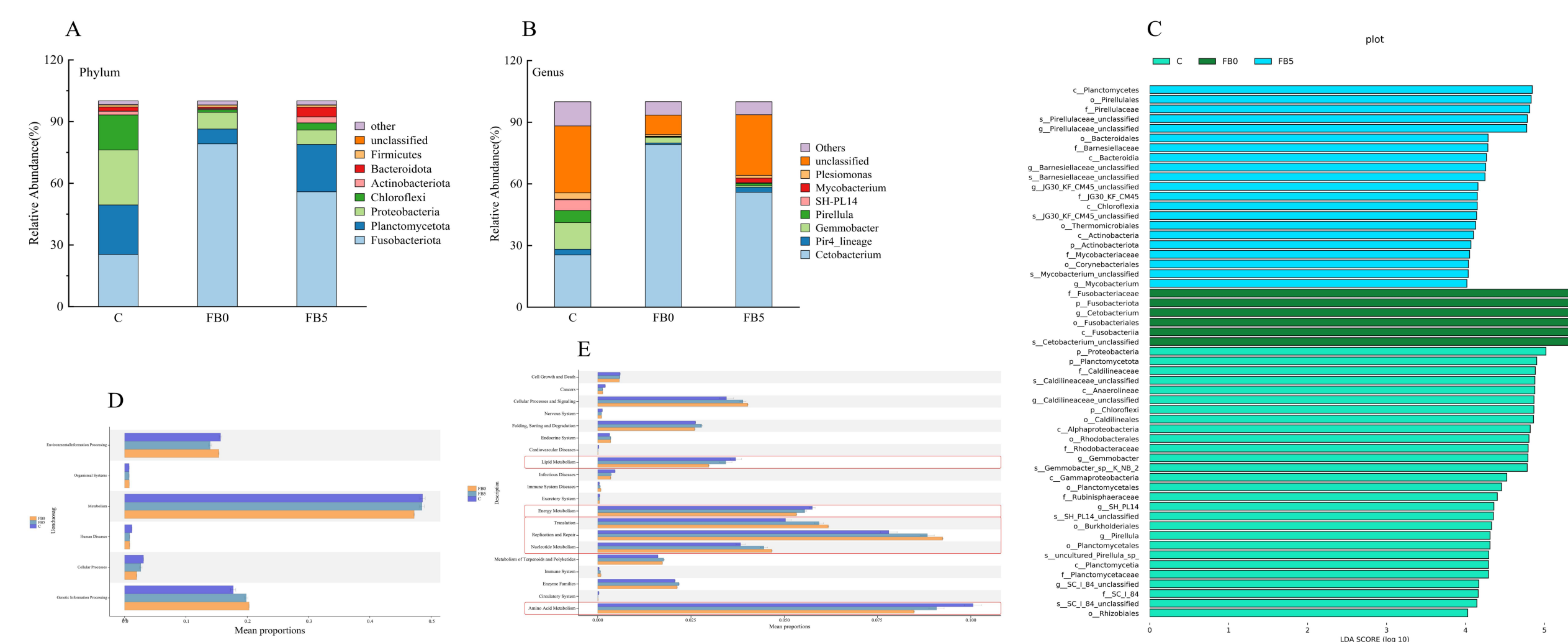


Fig.3 Microbial composition and function prediction of intestinal microbiota.

4. **Trypsin, IFN-γ and TNF-α** were positively correlated with **Cetobacterium**

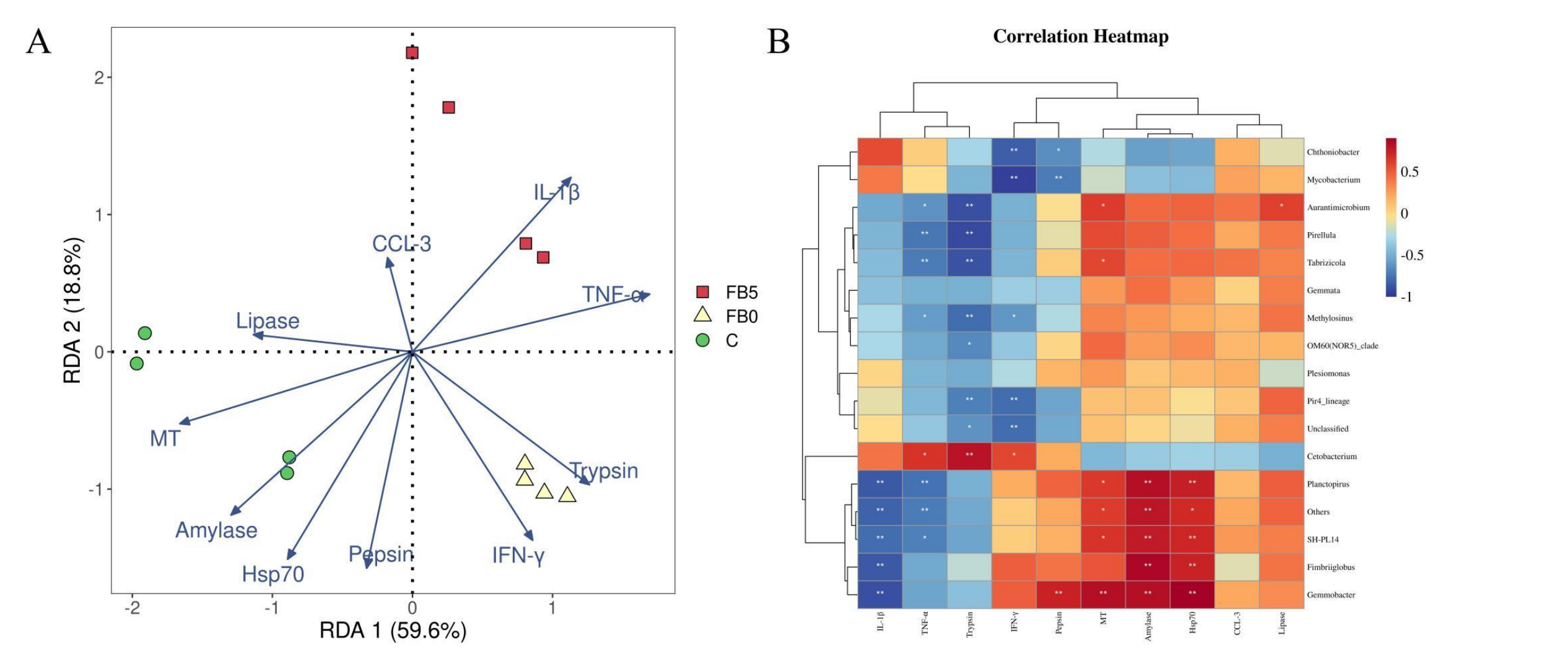


Fig.4 The correlation analysis between intestinal microbiota (Genus levels) and physiological indexes.

Conclusion

