

# FISHMEAL SUBSTITUTION BY FERMENTED SOYBEAN MEAL MODULATION OF IMMUNE AND PHYSIOLOGICAL RESPONSES OF EUROPEAN SEABASS

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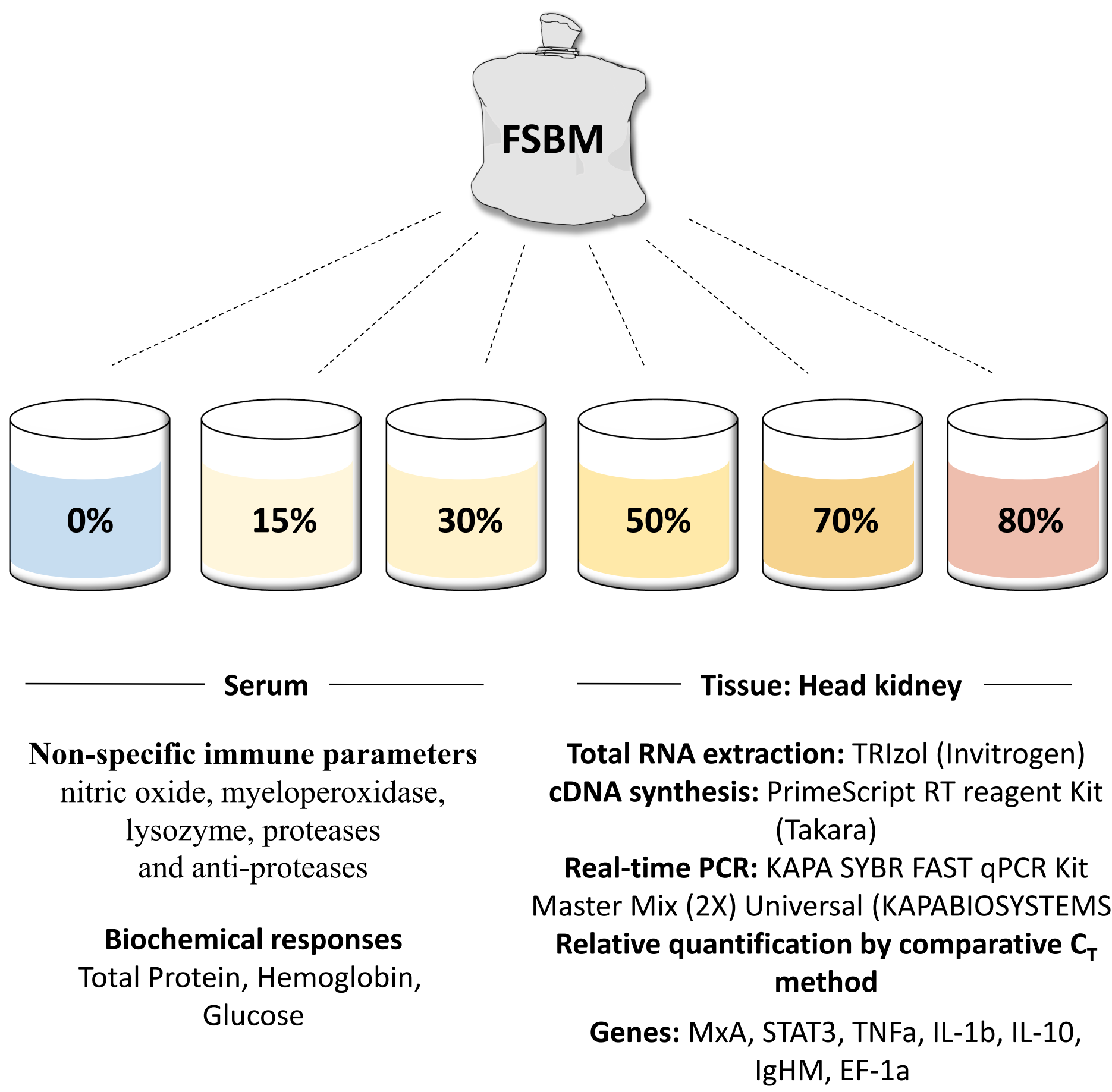
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## Introduction

Soybean meal is widely used as an alternative to fishmeal in aquafeeds due to its high protein content, availability, and competitive price. Fermentation technology of soybean meal is considered an effective method to reduce anti-nutrient factors and enhance nutrient digestibility, palatability, and immune function<sup>1,2</sup>. The present study aimed to explore the impact of partial replacement of fishmeal by fermented soybean meal (FSBM) focusing on the underlying mechanisms involved on the immune responses of European seabass (*Dicentrarchus labrax*), an economically important fish species in European and Mediterranean aquaculture.

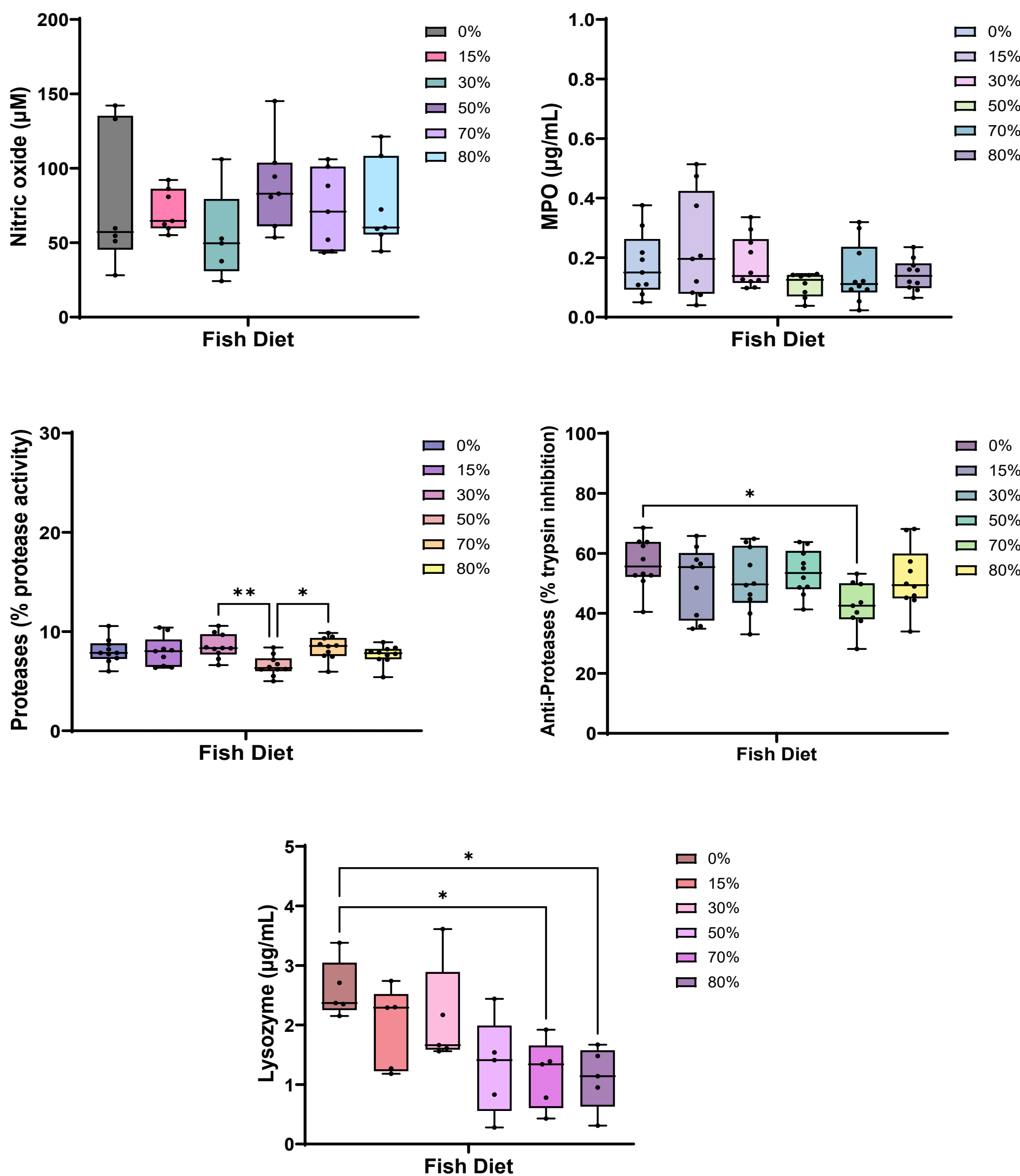
## Material & Methods



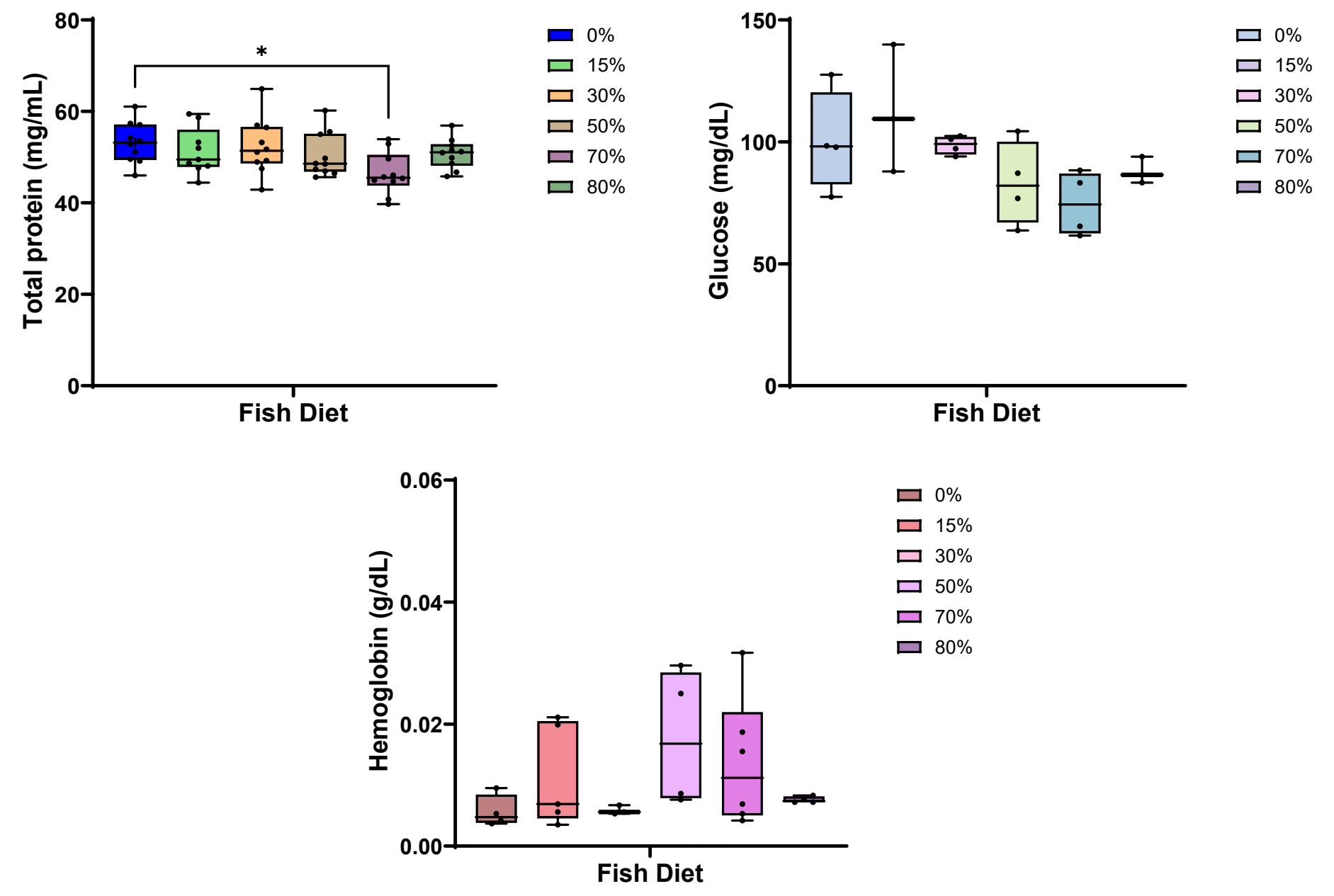
## Results

### Serum

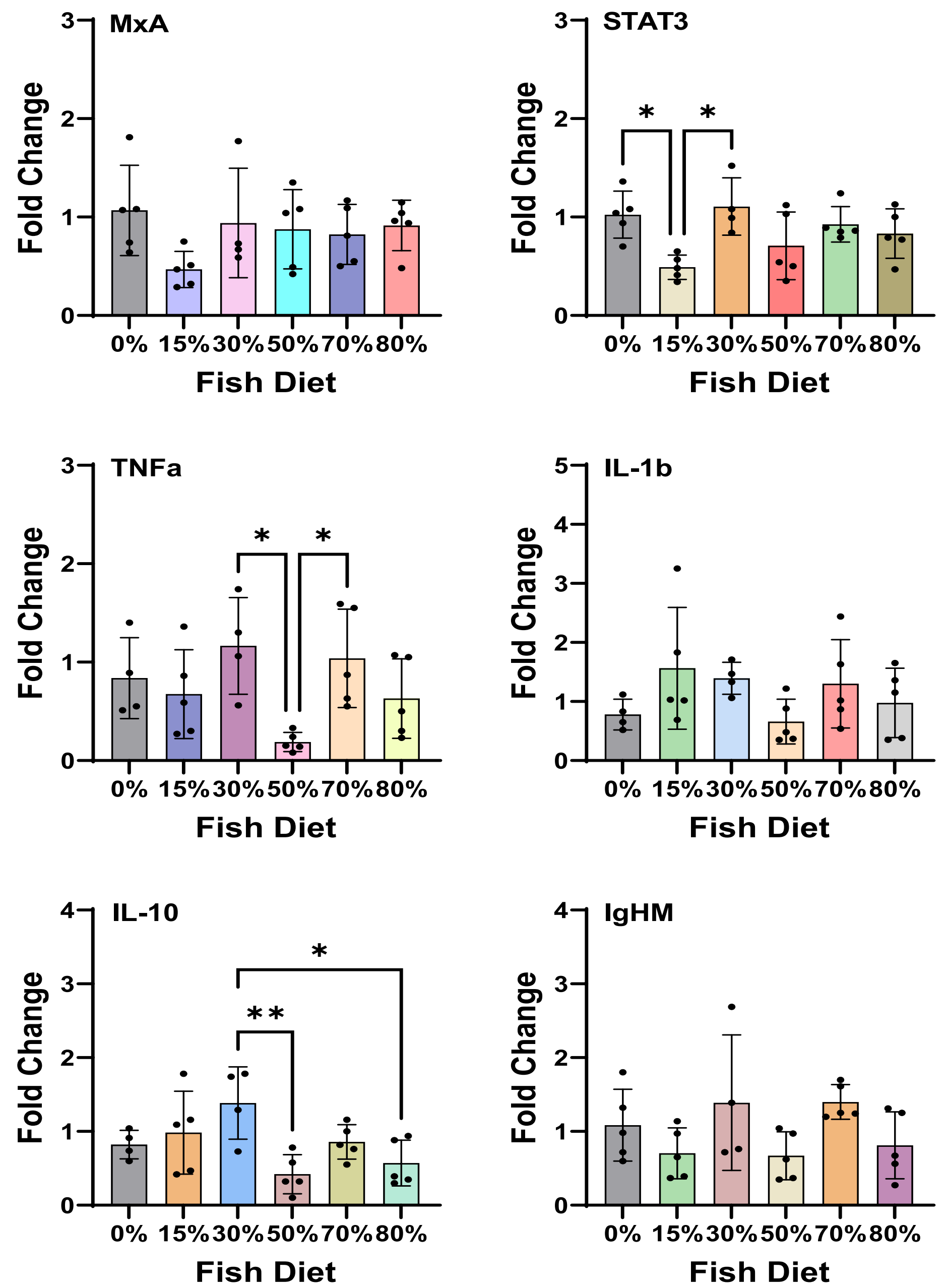
#### Non-specific immune parameters



### Biochemical responses



### Gene expression



## Conclusion

- The experimental diets of different levels of fishmeal substitution with fermented soybean meal did not induce an immune response, which would be indicative of harmful effects on fish physiology.
- Based on the above, fermented soybean meal could be an alternative source of protein in aquaculture.

## References

- Qin Zhang, Fanghui Li, Mengjie Guo, Meilan Qin, Jiajing Wang, Hairui Yu, Jian Xu, Yongqiang Liu and Tong Tong, 2023. Growth Performance, Antioxidant and Immunity Capacity Were Significantly Affected by Feeding Fermented Soybean Meal in Juvenile Coho Salmon (*Oncorhynchus kisutch*). *Animals*, 13(5), 945.
- Qin Zhang, Qiuyue Yang, Mengjie Guo, Fanghui Li, Meilan Qin, Yi Xie, Jian Xu, Yongqiang Liu and Tong Tong, 2023. The Effects of Dietary Fermented Soybean Meal Supplementation on the Growth, Antioxidation, Immunity, and mTOR Signaling Pathway of Juvenile Coho Salmon (*Oncorhynchus kisutch*). *Fishes*, 8(9), 448.



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