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# Third International Congress on Biological and Health Sciences Abstract Book

ONLINE 14-15-16 April

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## **THIRD INTERNATIONAL CONGRESS ON BIOLOGICAL AND HEALTH SCIENCES ABSTRACT BOOK**

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Ulaş ACARÖZ

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## **Editor's Note**

The Third 'International Congress on Biological and Health Sciences' was organized online and free of charge. We are very happy and proud that various health science-related fields attended the congress. By this event, the distinguished and respected scientists came together to exchange ideas, develop and implement new researches and joint projects. There were 28 invited speakers from 15 different countries and also more than 200 submissions were accepted. More than 50 countries contributed to the congress. We would like to thank all participants and supporters. Hope to see you at our next congress.

Best wishes from Turkey

**Assoc. Prof. Dr. Ulaş ACARÖZ**



# Third International Congress on Biological and Health Sciences

ONLINE 14-15-16 APRIL 2023

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# POSTER PRESENTATIONS

## Mixture of bee bread with honey - nutritional and microbiological characterization

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### Abstract:

Bee bread is a bee product prepared within honeycombs, through the fermentation of bee pollen collected and partially processed by bees. The nutritional composition of this product enhances its market value. It is rich in proteins, essential amino acids, simple sugars and fatty acids and is seen as a functional food. Despite these interesting properties, bee bread is not properly valued by beekeepers, partly due to the limited access to scientific information and to the difficult extraction process. In addition, its nutritional richness, together with the existing microbiota, can hinder the process of preservation of bee bread, particularly when handling practices are not adequate. This work aims to contribute to a greater valorization of bee bread, through its use in the design of a differentiated product with increased stability, resulting from the mixture of bee bread with honey. The bee bread and honey mixture, as well as the raw materials, were characterized through the analysis of their physical-chemical (water activity, moisture, ash, protein, and fat contents) and microbiological (aerobic mesophiles, yeasts and molds, lactic acid bacteria, sulfite-reducing clostridium spores, coliforms, *E. coli* and *Staphylococcus aureus*) parameters. Major nutritional differences were observed between honey and bee bread in the protein and fat contents. Bee bread showed high contents of both components ( $20.3 \pm 0.3\%$  protein and  $3.9 \pm 0.4\%$  fat), against very low or undetected levels in honey ( $0.29 \pm 0.02\%$  of protein and undetected fat). The mixture showed a balanced content of both components, considering the proportion of each raw material ( $6.2 \pm 0.2\%$  protein and  $1.2 \pm 0.2$  fat). Thus this approach seems an interesting option in terms of nutritional parameters, when compared to the highly consumed honey. Microorganisms were detected at very low levels, except for coliforms and *E. coli*, which were not detected. The low water activity of the mixture ( $0.5 \pm 0.2$ ) is an important preservation parameter.

**Keywords:** beekeeping, bee products, innovative product, preservation

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