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[5589] NUTRITIONAL COMPOSITION, BIOACTIVITY AND MICROBIOLOGICAL STABILITY OF BEE BREAD DURING THE PRESERVATION PROCESS

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Abstract: Bee bread (BB) is a precious beehive product, with growing commercial interest due to its nutritional value and richness in bioactive compounds responsible for its biological activity. In cases where the processing and storage practices of BB are not suitable, significant losses in its nutritional value can occur, becoming vulnerable to microbial growth and spoilage. Here, we aimed to evaluate the effects of different preservation methods (freezing (F), room temperature (RT), oven drying (OD), and freeze-drying (FD) on the physicochemical properties, antioxidant activity, and microbial stability of BB, during a 6-month period. The pH of fresh BB, 3.7, increased with F, OD, and FD preservation methods and reached a maximum of around pH 4.0. Besides, F resulted in the lowest total lipid content loss, 11%, among all the applied methods, followed by FD, OD, and RT with losses of 20%, 24%, and 31%, respectively. The initial protein content of BB, 28%, also decreased over time, for all preservation methods, with losses between 8 to 25%. Moreover, there was a decrease in the total phenolic content of BB with time, which was reflected in the antioxidant activity. Within the microbial parameters, the highest microbial loads were observed using the freezing method. Overall, each preservation technique acted differently on the nutritional, antioxidant activity and microbial stability of BB, nevertheless, considering the results, regular storage at RT seems adequate for this bee product.

Keywords: bee bread; storage; quality control; antioxidant activity.

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