



16-18 / MAY / 2025

University Metropolitan Tirana

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Multidisciplinary Studies

ABSTRACT BOOK

Editor

Dr. Karel SMEJKAL

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12. INTERNATIONAL EUROPEAN CONGRESS ON ADVANCED STUDIES IN BASIC SCIENCES

May 16-18, 2025, Albania
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CONGRESS ID

TITLE OF CONGRESS

12. INTERNATIONAL
EUROPEAN CONGRESS ON ADVANCED STUDIES IN BASIC SCIENCES

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TOTAL PAPERS: 213

The number of abstracts from foreign countries: **108**

The number of abstracts from Türkiye: **105**

LANGUAGES

Turkish, English



PROPERTIES OF DRY PASTA ENRICHED WITH BEE DRONE BROOD POWDER

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ABSTRACT

The enrichment of staple food is one of the goals of modern technologies. Pasta is one of the most appreciated foods enjoyed across diverse cultures and produced all around the world. This food makes a significant contribution to the population's energy intake, although it is generally deficient in essential nutrients. Edible insects have become an emerging trend in the search for greener and more environmentally friendly foods. They are considered a rich source of valuable nutrients and health-related compounds. Thus, the contribution of insects to sustainability, nutrition and health can emphasise the potential of pasta through the preparation of dry pasta by partially replacing wheat semolina flour with drone brood powder (DP), which is rich in protein (27-38%). DP was obtained by cold (CE) and hot (HE) extraction processes, and after was lyophilized and milled to obtain powder. After several trials, it was possible to incorporate 10% DP-CE and 20% DP-HE in pastas and decrease the durum wheat (*Triticum durum*) semolina, in the same proportion. To optimise the dough drying process, three time/temperature (t/T) binomial conditions were tested for oven drying of the doughs: 12h/ 40°C, 10h/ 30°C, and 5h/ 45°C. Also, the shape (tagliatelle and lasagne plate) was tested. Pastas were evaluated in terms of its technological characteristics (optimum cooking time (OCT), cooking losses, swelling index (SI)), physical characteristics (colour and texture), chemical characteristics (nutritional composition)



and sensory characteristics, and compared with a control pasta (0% DP). The optimum t/T for drying the pasta was 5h /45°C. The best shape of pastas was the tagliatelle because the lasagne plates were deformed after drying for all the drying conditions tested. The OCT, cooking loss, SI and hardness increased with the addition of DP. The water absorption was higher in 10% DP-CE pasta. Pasta produced with 20% DP-HE presented a dark colour and higher Total Colour Difference, comparing with control pasta. Furthermore, pasta with added DP had a higher protein, fat and ash content, meaning more nutritional quality. Sensorially, the DP pastas had an overall appreciation and a preferential purchase intention by the tasters compared to the control pasta. DP is a promising ingredient in pasta production, contributing to human health and at the same time promoting economic returns, since beekeepers can valorise a product from the hive that is usually not used. Moreover, the produced pastas presented satisfactory technological properties, and they were also appreciated by the consumers.

Keywords: dry pasta development, bee drone brood powder, physicochemical characterization, sensory analysis.

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