CARPATHIAN JOURNAL OF FOOD SCIENCE AND TECHNOLOGY

journal homepage: **http://chimie-biologie.ubm.ro/carpathian_journal/index.html**



*Research article*

# MOZZARELLA CHEESE ENRICHED WITH SPICES: IMPACT ON MUSKY FLAVOUR, NUTRITIONAL PROFILE, TEXTURAL AND MICROSTRUCTURAL PROPERTIES

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https://doi.org/10.34302/crpjfst/2025.17.4.3

**Article history:**
**Received:**
April 26th, 2025
**Accepted:**
October 30th, 2025
**Published**
December 30th, 2025

**Keywords**
*Cheese yield;*
*Microstructure;*
*Physicochemical properties;*
*Spice-flavoured;*
*Total phenolic content.*

**Abstract**

Goat milk offers low allergenicity, excellent digestibility, and a rich nutrient profile, but its musky flavour limits consumer acceptance. This study aimed to develop a spice-flavoured goat milk mozzarella cheese to overcome this issue. Preliminary sensory evaluations identified 3% (w/w) pepper (*Piper nigrum*) as the most suitable spice compared to cinnamon (*Cinnamomum verum)* and onion (*Allium cepa*). Selected pepper-incorporated goat milk mozzarella cheese (PGMMC) was developed and compared with conventional goat milk mozzarella cheese (GMMC) and cow milk mozzarella cheese (CMMC) to evaluate flavour masking and product quality. Physicochemical, textural, microstructural, and antioxidant properties were assessed over 28 days of storage. PGMMC showed a higher cheese yield (12.36%), significantly lower fat content (19.94% w/w), and the highest overall acceptance while effectively masking the musky flavour compared to CMMC. PGMMC also exhibited the highest total phenolic content (75.72 mg GAE/100 g), indicating superior antioxidant capacity. Texture analysis revealed GMMC had higher stringiness than PGMMC ($p_{value}$<0.05). Microstructure analysis showed more compact and smooth protein matrices in GMMC and PGMMC compared to CMMC. In conclusion, pepper addition to goat milk mozzarella enhances sensory, textural, and nutritional qualities while successfully masking the undesirable musky flavour, promising an approach to increase consumer appeal.