CARPATHIAN JOURNAL OF FOOD SCIENCE AND TECHNOLOGY

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

Research Article

NUTRITIONAL, PHYSICOCHEMICAL, AND ANTIDIABETIC PROPERTIES OF PASTEURIZED AND UNPASTEURIZED CAMEL MILK: A SUSTAINABLE ALTERNATIVE FOR DIABETICS

Soumya Singh[1], Sonia Mann[2], Ankita Kataria[3], Rhythm Kalsi[2], Shambhavi Singh[1], Neetu Kumra Taneja[4], Komal Chauhan[1]✉, Harinder Singh Oberoi[4]✉

[1] Department of Food Science and Technology, National Institute of Food Technology Entrepreneurship and Management (NIFTEM), Kundli, Haryana, India

[2]Centre of Excellence for Food Fortification, National Institute of Food Technology Entrepreneurship and Management (NIFTEM), Kundli, Haryana, India

[3]Department of Food Science and Technology, Maharaja Ranjit Singh Punjab Technical University (MRSPTU), Bathinda, Punjab

[4]Department of Inter-Disciplinary Sciences, National Institute of Food Technology Entrepreneurship and Management (NIFTEM), Kundli, Haryana, India

✉drkomal.niftem@gmail.com;✉hari_manu@yahoo.com

https://doi.org/10.34302/crpjfst/2025.17.1.5

Article history:
Received:
February 16th , 2025
Accepted:
March 31th, 2025

Keywords:
Camel milk;
Therapeutic potential;
Nutritional benefits;
Type-1 Diabetes;
Health benefits.

ABSTRACT

This present study was focused on compared properties of unpasteurized camel milk (UCM) and pasteurized camel milk (PCM) powder. Physicochemical analyses revealed nearly identical parameters, with PCM showing slightly higher fat content and 1.2-fold increase in leucine. Significant variations were observed in true density (1.5-fold), angle of repose (1.16-fold), and porosity (1.26-fold) upon pasteurization. Functional characteristics differed significantly ($p<0.05$) for UCM and PCM. FTIR analysis reflected physico-chemical transformations occurring during pasteurization. Antioxidant activity was found to be potent in UCM (70.93= 10mg/ml), The alpha amylase inhibition activity was found significantly ($p>0.05$) higher in unpasteurized milk (43-67 %) at 10-50 mg/mL concentrations compared to pasteurized milks (16.7-36.7%), respectively. Target gene prediction for bioactive compounds, conducted using PharmMapper, DisGENET, and AutoDock Vina, revealed strong binding of lactoferrin to haptoglobin (-7.4 Kcal/mol) and ceruloplasmin (-7.3 Kcal/mol). Results highlighted the potential of camel milk as a dietary supplement, particularly for diabetic patients.