



13-14 November 2025

NUTRITIONAL PROFILE ASSESSMENT OF RED ONION (ALLIUM CEPA L.) – PRELIMINARY RESULTS

Bogdan COZMA¹, Iasmina Madalina ANGHEL², Casiana MIHUT¹,
Adalbert OKROS¹, Antoanela COZMA¹

¹University of Life Sciences "King Michael I" from Timisoara, 300645, Romania

²Politehnica University of Timișoara, Materials and Manufacturing Engineering Department, 300222

Abstract:

The aim of the work was to evaluate the basic nutritional composition of a red onion variety sold in local markets. The preliminary results obtained (in DM): 10.37–10.89% moisture, 3.54–4.06% ash, 2.65–3.29% protein, 1.38–1.98% fat, 6.52–7.64% fiber and 71.63–74.93% carbohydrates show that red onion is a rich source of carbohydrates and minerals, with moderate fiber intake and low protein and lipid content, confirming its moderate energy value. These data support the nutritional potential of red onion and propose the use of red onion powder as a natural additive in food with added value or as an alternative source in animal feed ingredients

Introduction

Red onion (*Allium cepa* L.) is a food with a high water content, carbohydrates, and fiber, but low in protein and fat. It is rich in flavonoids and anthocyanins, bioactive compounds with antioxidant and anti-inflammatory effects, which give it a high functional value. Compared to white or yellow varieties, red onion adds nutritional and bioactive value to dishes and is recommended primarily as a functional ingredient rather than a major source of energy or protein.

Materials:

The plant material analyzed, in powder form, was obtained from red onion bulbs (*Allium cepa*) sold in local agri-food markets. Three distinct batches were used, labeled in the text as L1, L2 and L3

Methods:

The concentrations of nutritional parameters for red onion bulbs samples were determined according to AOAC Official Methods of Analysis, 2000

Results and discussions

The nutritional parameters of the three batches of red onion (Figure 1 and 2) show that red onion powder (*Allium cepa* L.) presents a complex and beneficial nutritional profile .

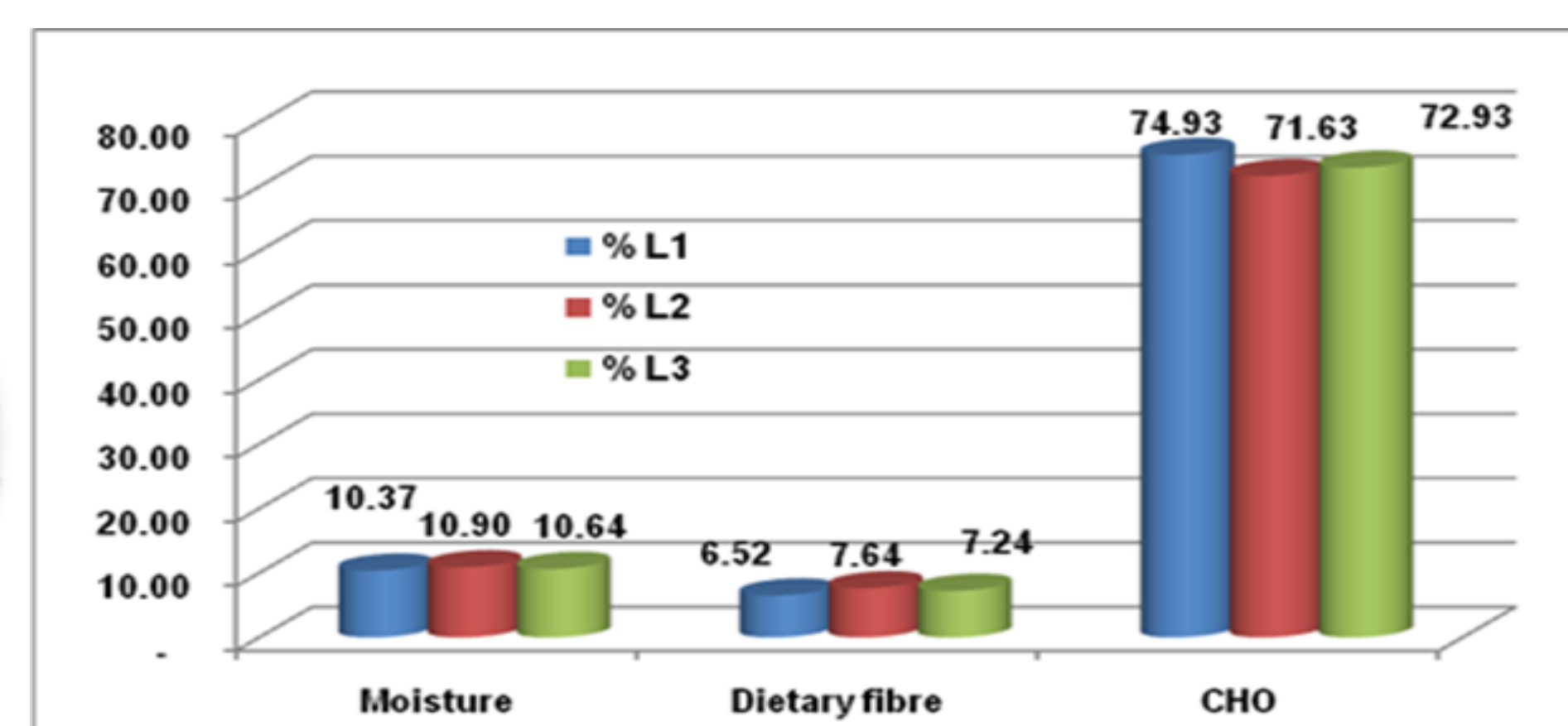
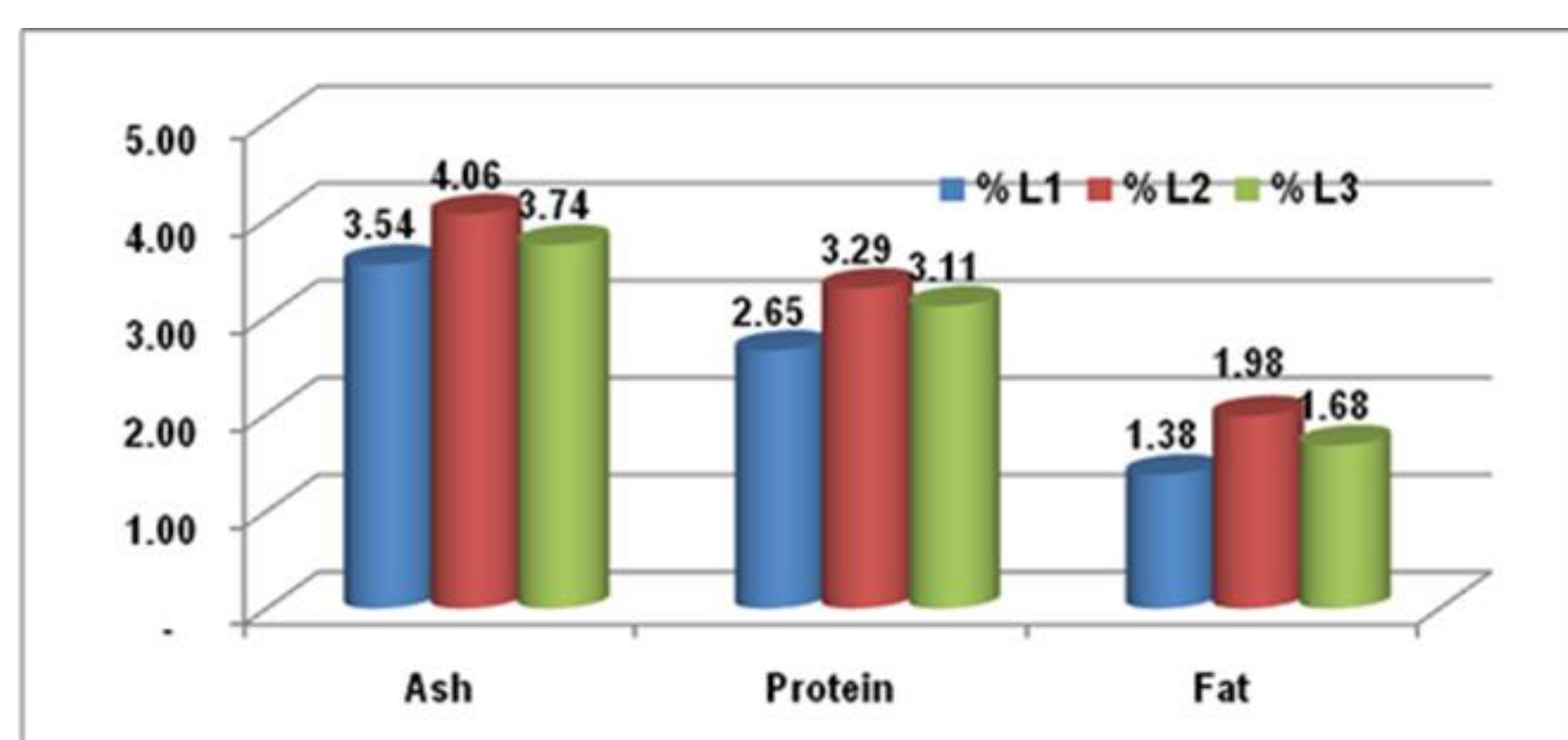


Figure 1. The ash, protein, and fat content in three batches (L1, L2, and L3) of red onion samples

Figure 2. The moisture, dietary fibre and CHO content in three batches (L1, L2, and L3) of red onion samples

The low moisture content (10.37–10.89%) provides stability and allows long-term storage of the product. Ash (3.54–4.06%) indicates an important contribution of essential minerals, while carbohydrates are the main component (71.63–74.93%), providing quick energy. Proteins (2.65–3.29%) and fats (1.38–1.98%) are present in small quantities, and fibers (6.52–7.64%) are moderate.

Conclusions

The analyzed red onion (*Allium cepa* L.) samples has a balanced nutritional profile with low moisture, ensuring good storage stability. It provides modest protein and fat, moderate fiber, high carbohydrates, and significant mineral content. Rich in vitamins, bioactive compounds, and antioxidants, it is a valuable food for supporting health and dietary diversification.