

# Beta-Carotene and Ascorbic Acid Equivalent in Different Sweet Potato Varieties

Oana Bogdana Greblă<sup>1</sup>, Vanda Băbălău Fuss<sup>2,\*</sup>

<sup>1</sup>Clinica Dr. Bogdana NutriMedical Center, Cluj-Napoca, Romania

<sup>2</sup>INCDO-INOE2000, Research Institute for Analytical Instrumentation, ICIA Cluj-Napoca Subsidiary, 400293 Cluj-Napoca, Romania

\*Corresponding author: [vanda.fuss@icia.ro](mailto:vanda.fuss@icia.ro), tel. (+4)0264-420590

## Introduction

Sweet potato (*Ipomoea batatas*) is a valuable source of natural antioxidants such as beta-carotene and ascorbic acid. These compounds contribute to human health by supporting vision, immunity and protection against oxidative stress. Their concentration varies among varieties, affecting the overall nutritional quality.

The scientific literature highlights numerous ways to utilize different parts of the sweet potato plant. From alcoholic or aqueous extracts and topical gels to the culinary use of roots and leaves, the health and nutritional benefits of sweet potato are widely recognized worldwide.



Figure 3. Analyzed samples

## Results and conclusions

The beta-carotene and ascorbic acid equivalent contents varied notably among the four sweet potato varieties. The **Egipt** variety exhibited the **highest beta-carotene concentration (101.8 ng/g)**, while **Purple** showed the **highest ascorbic acid equivalent (673.53 µg/g)**, indicating strong antioxidant capacity. In contrast, **Yulmi** and **Hayami** varieties contained considerably lower levels of both compounds. These results highlight significant biochemical diversity among cultivars, suggesting that orange-fleshed varieties may contribute more effectively to vitamin A and antioxidant intake.

Among the analyzed sweet potato varieties, **Egipt** showed the highest **beta-carotene content**, while **Purple** demonstrated the strongest **antioxidant activity** based on ascorbic acid equivalent. These findings emphasize the nutritional diversity of sweet potato cultivars and support the promotion of **orange- and purple-fleshed varieties** as valuable sources of natural antioxidants and vitamin A for improving human health.

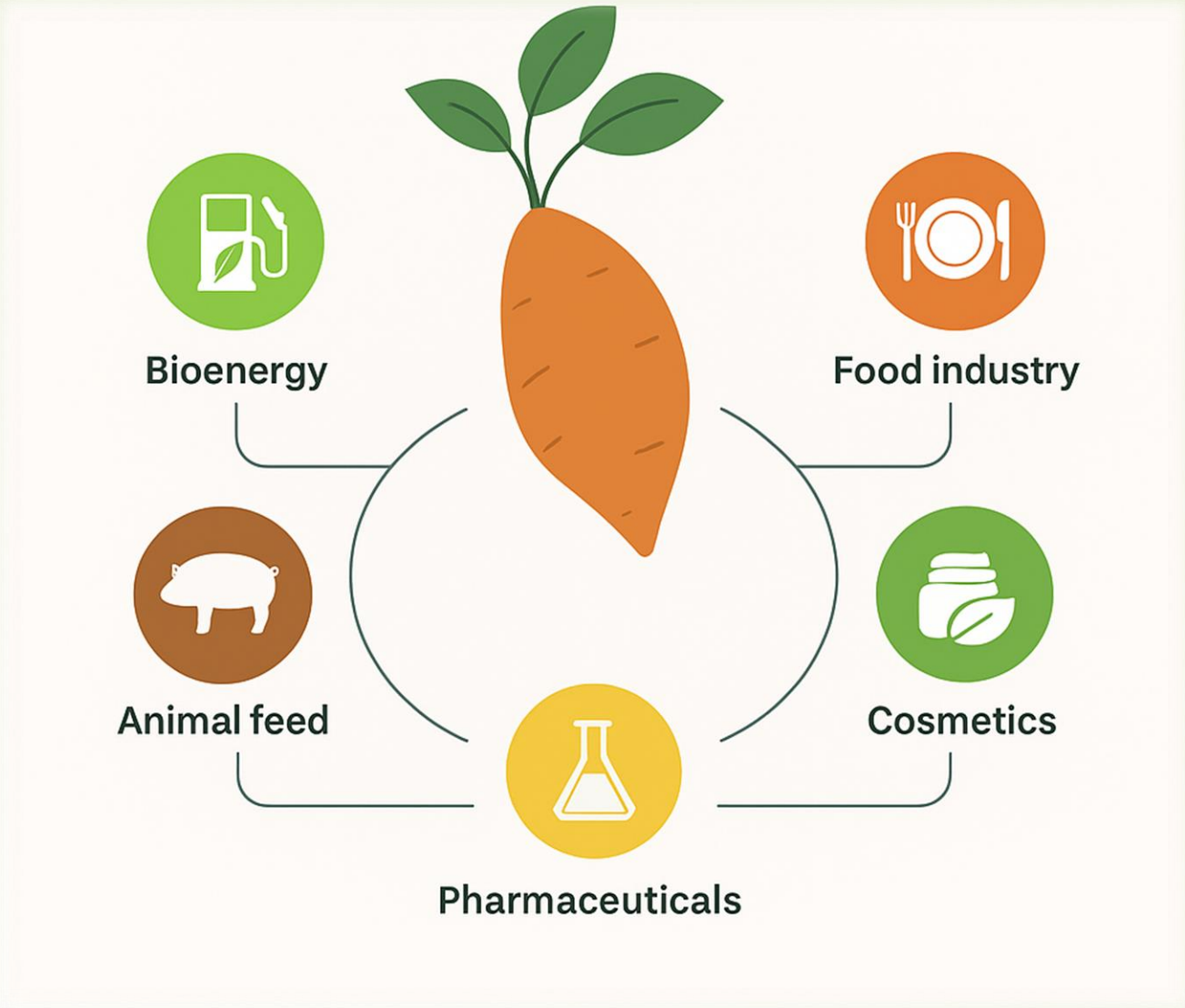


Figure 1. Sweet potato-based products



Figure 2. Difernt varieties of sweet potatoes

## Methodology

Four sweet potato varieties — **Yulmi**, **Hayami**, **Purple** and **Egipt** — were analyzed. Tubers were washed, peeled, and homogenized prior to extraction. **Beta-carotene** was determined spectrophotometrically using a hexane–acetone solvent system at 450 nm, while **ascorbic acid equivalent** was evaluated by the DPPH radical scavenging assay. All measurements were performed in triplicate, and results were expressed as mean ± standard deviation.

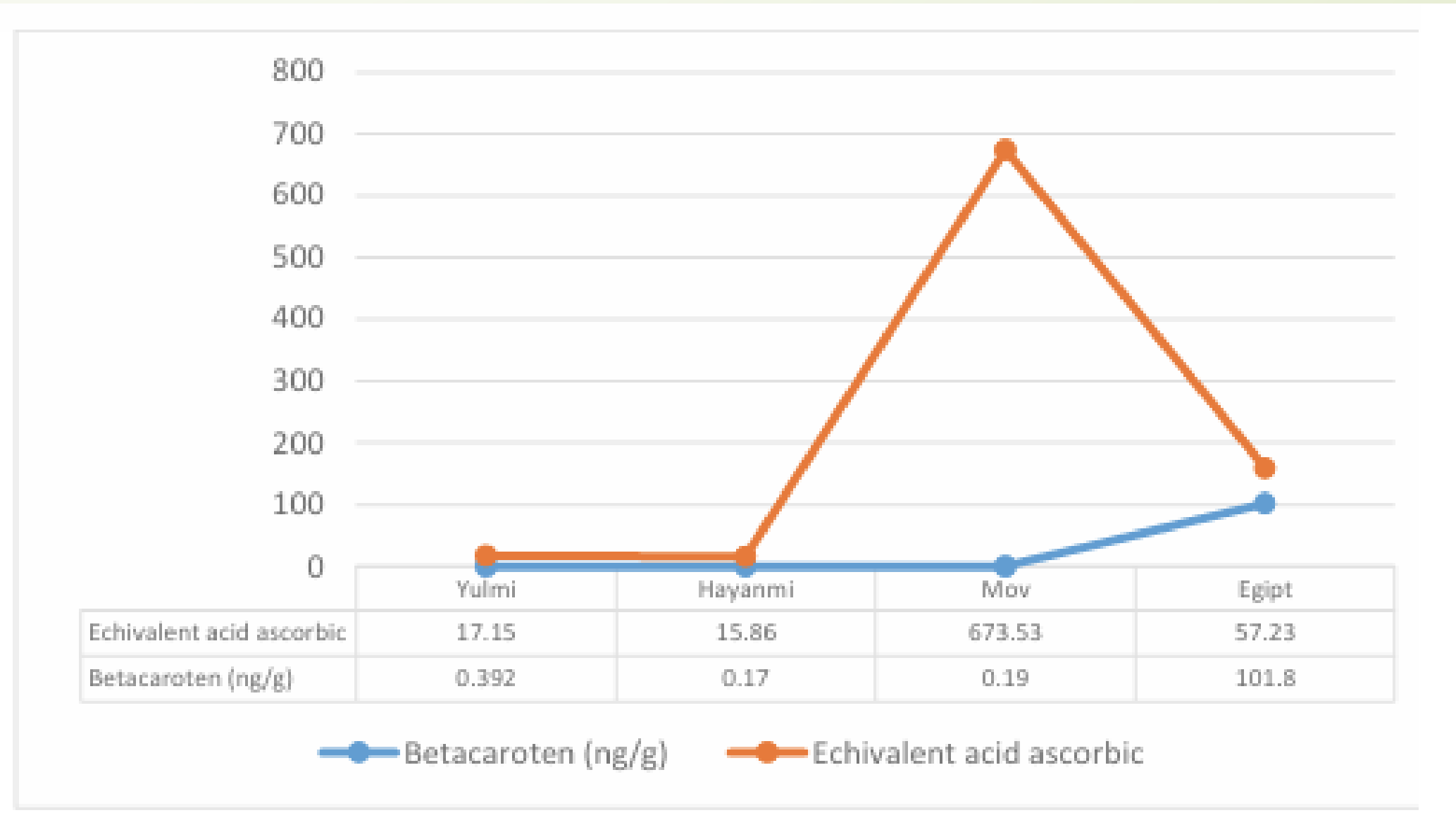


Figure 4. Beta-carotene and ascorbic acid content of samples