RES-CIRCULAR

Iceland Liechtenstein Norway grants
Norway grants

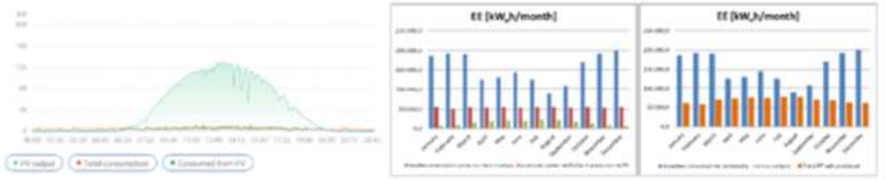
Renewable Energy Sources and Circular Economy Applied in an Academic Community as an Example for Smart Sustainable Development

Project number: 2020/554215

Project team: Teodor Vintilă, Cosmin Alin Popescu, Adina Horablaga, Isidora Radulov, Acatincăi Stelian, Marco Di Stanislao

Description

The energy system consists of a photovoltaic plant of 150 kWe and a biogas plant containing a CHP unit of 100 kWe installed capacity. The total electricity production capacity of the system is predicted at approx. 825 MWh/year, which can cover up to 50% of the total electricity consumption of the USV Regele Mihai I campus in Timișoara. Total savings of CO2 equivalent are evaluated at 2400 tons / year. State of development: Project, energy system in function



University campus will save up to 50% of electric energy from fossil fuel and 10% of thermal energy from fossil fuel

The time for renewable energy and circular bioeconomy has arrived. Replication of **RES-CIRCULAR project powered by Norway through the Norway Grants**, will help to achieve energy security in România and in Europe and to reduce negative impact of human activity on the climate and environment

University can connect renewable energy technologies with a large number fields: agriculture, animal sector, forestry, horticulture, rural development, circular economy, food industry, clean environment. Transfer of knowledge through training of tomorrow's generation

Total budget: 1,122,514 Euro, of which 954,000 Euro are offered as a grant by Norway through EEA and Norwegian Financial Mechanisms. The rest of the total eligible expenses are foreseen in the budget of USV Timișoara. Project period: December 2020 - April 2025

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GRAPE CULTIVAR "BEGA"

ALEXANDROV EUGENIU, DOBREI ALIN, BOTNARI VASILE, DOBREI ALINA, GĂINĂ BORIS

Institute of Genetics, Physiology and Plant Genetics in Chisinau, Republic of Moldova,
University of Life Sciences "King Mihai I" from Timișoara, Romania

The new genotype represents a grape cultivar developed for industrial processing, suitable for both wine and juice production.

Ampelographic description

The mature leaves are palmate-lobed and green in colour. The leaf blade has a revolute profile, with pronounced teeth along the leaf edges. The petiole sinus is wide open, a characteristic that aids in cultivar identification. The clusters are medium to large, cylindrical-conical in shape, uniaxial, single-winged, and loosely structured, which allows for better aeration of the berries. Typically, there are two clusters per shoot, ensuring consistent yields.

Ampelographic description

The clusters are resistant to handling and can be transported and stored fresh without significant quality loss. The berries are medium-sized (averaging about 60 mg), elongated, evenly distributed within the cluster, and display an attractive blue-violet skin colour. The pulp is colourless, juicy, and firm, with a pleasantly neutral taste, and separates easily from the 1–2 seeds despite slight adherence to the skin.

Ripening period: Medium, allowing flexibility in harvest timing.
Resistance: The cultivar is drought-tolerant and resistant to low winter temperatures.
Yield: Depending on cultivation practices, 'Bega' produces 5–7 kg per vine, equivalent to 14–16 tons per hectare.

PHYTORESIL – NATURAL SUPPLEMENT WITH POLYPHENOLS AND MICRONUTRIENT

University of Life Sciences "King Mihai I" from Timisoara, 300645, Timisoara, Romania,
Faculty of Food Engineering

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Amaranthus retroflexus and *Chenopodium album* are plants traditionally used in food, valuable for their content of polyphenols and flavonoids with antioxidant and anti-inflammatory action. Their intake of minerals (Ca, Fe, Mg, Zn, K) and vitamins (C, E, beta-carotene) supports bone health, immunity, energy metabolism and cellular protection.
PhytoResil Premix is a standardized extract obtained from leaves and stems of *Chenopodium album* and *Amaranthus retroflexus*. It is presented in the form of a fine vegetable powder, with an olive-green hue and a slightly bitter taste, specific to vegetable raw materials. The product is concentrated in polyphenols and essential minerals, being designed as an active ingredient for food supplements and nutraceutical products. The extract is rich in bioactive compounds and essential minerals: total polyphenols (≥ 80 mg GAE/g), potassium (~10.465 mg/100 g), calcium (~4.784 mg/100 g), iron (~154 mg/100 g), zinc, manganese and copper. This combination supports electrolyte balance, energy metabolism, immune function and bone health, making it suitable as an ingredient for supplements and nutraceutical formulas.

Figure 1. *Amaranthus retroflexus (Photos Mihaela Lăcătuș, 2025)*

Figure 2. *Chenopodium album (Photos Mihaela Lăcătuș, 2025)*

PhytoResil Premix – Supplement Facts

One capsule contains 300 mg of PhytoResil Premix, a standardized extract rich in bioactive compounds and essential minerals. The product provides polyphenols as the main active component, recognized for their antioxidant action and their role in cell protection. The content of potassium, calcium, iron, zinc, manganese and copper contributes to maintaining electrolyte balance, supporting energy metabolism, immune function and bone health.

Figure 3. Premix Composition

Suggested Use

Adults: Take 1 capsule twice daily with meals. For increased support (elderly, high oxidative stress, athletes), take up to 2 capsules twice daily. Do not exceed 2 g/day (≈ 6–7 capsules).

Warnings

- Not recommended for children under 12 years.
- Pregnant or lactating women: consult your healthcare provider before use.
- Not suitable for individuals with kidney disease (risk of hyperkalemia).
- Supplements should not replace a balanced diet and healthy lifestyle.

Product description:

PhytoResil Premix is a fine plant-based powder obtained from leaves and stems of *Chenopodium album* and *Amaranthus retroflexus*. The product is standardized for its content of polyphenols and essential minerals, serving as a functional ingredient for dietary supplements and nutraceuticals.

- **Appearance**: fine, olive-green powder
- **Odor/Taste**: characteristic vegetal, slightly bitter
- **Moisture**: < 8%
- **Solubility**: partially soluble in water
- **pH** (1% solution): 5.0–6.5

Main composition (indicative values)

Indicative Premix Composition (mg/100 g), (calculated as weighted means from table data)

- Total polyphenols: ≥ 80 mg GAE/g
- K: 10465.4 mg
- Ca: 4783.9 mg
- Fe: 153.5 mg
- Zn: 10.6 mg
- Mn: 38.1 mg
- Cu: 1.9 mg

Recommended applications

- Dietary supplements: 200–500 mg/capsule
- Instant beverages / functional powders: 1–3 g/serving
- Solid formulations (bars, snacks, bakery): 2–5% of formula

Packaging and storage

- Packaging: multilayer pouches or bags, 5–25 kg
- Storage conditions: cool, dry, dark place, below 25°C
- Shelf life: 24 months from production date

Key advantages

✓ 100% natural, no synthetic additives
✓ Rich in polyphenols and essential minerals
✓ Suitable for nutraceutical and functional food applications

ACKNOWLEDGEMENTS

This study was funded by the University of Life Sciences "King Mihai I" from Timisoara" and the results will be included in the PhD Thesis of Mihaela Lăcătuș, under the supervision of Prof.Habil.Dr.Eng. Despina-Maria Bordean Project: PhD Thesis, Doctoral Grant, IRVA Doctoral School, USVT, 2021–2025, Analysis of Bioactive Compounds from Plants and Their Application in the Development of Dietary Supplements".
The research was performed with the support of the Interdisciplinary Research Platform belonging to the University of Life Sciences "King Mihai I" from Timisoara Romania.

INTESTINAL PARASITES IN WILD CARNIVORES FROM ROMANIA AND MOLECULAR IDENTIFICATION OF CESTODE SPECIES

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Wild carnivores are key hosts in the transmission and maintenance of numerous **zoonotic parasites**. In Romania, parasitological data regarding these species remain limited, particularly for helminths with **zoonotic** potential.

This doctoral research project, conducted under the supervision of **Prof. Narcisa Mederle, aimed** to perform a comprehensive **investigation** of the **parasitic** load in **wild** mammals from **Romania**.

A total of 441 wild mammals, representing 11 host species—including the **brown bear** (*Ursus arctos*), **grey wolf** (*Canis lupus*), **Eurasian lynx** (*Lynx lynx*), **Golden jackal** (*Canis aureus*), **Red fox** (*Vulpes vulpes*), **raccoon dog** (*Nyctereutes procyonoides*), **European wildcat** (*Felis silvestris*), **European badger** (*Meles meles*), **European polecat** (*Mustela putorius*), **Pine marten** (*Martes martes*), **Stone marten** (*Martes foina*)—were examined across 28 counties in Romania.

Cestodes were detected in **7 host** species:

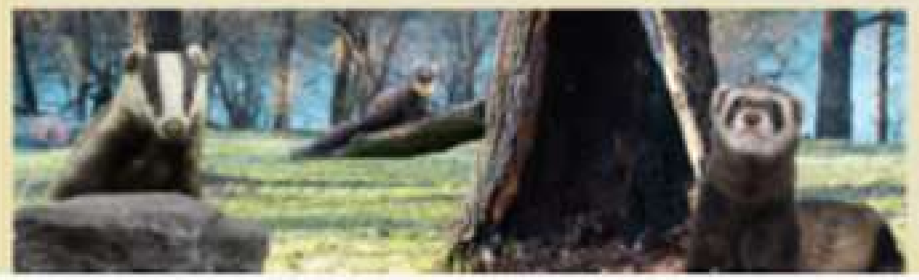
- Brown bear (*Ursus arctos*) – 1/115
- Grey wolf (*Canis lupus*) – 5/10
- Eurasian lynx (*Lynx lynx*) – 1/1
- Golden jackal (*Canis aureus*) – 29/83
- Red fox (*Vulpes vulpes*) – 72/161
- European wildcat (*Felis silvestris*)–22/27
- European badger (*Meles meles*) – 7/22

With the highest prevalence recorded in the:

! Red fox (*Vulpes vulpes*) – 44,71 %

Notably, two cestode species were reported for the **first time in Romania**: *Taenia arctos* in the brown bear and *Mesocestoides melesi* in the badger.

These findings highlight the **diversity** and **epidemiological** importance of **cestodes** in **wild carnivores** and underscore the role of wildlife as reservoirs for parasites with zoonotic potential. The data **contribute** to the **understanding** of parasite-host relationships **in Romanian** ecosystems and emphasize the need for ongoing **surveillance at the wildlife-domestic animal–human interface.**



Acknowledgements: This research was conducted within the framework of the PhD thesis of Maria Monica Florina Moraru at the University of Life Sciences "King Mihai I" from Timisoara, Faculty of Veterinary Medicine, under the supervision of Professor Narcisa Mederle

Assessment of the nutritional and biofunctional profile of Sibiu salami, verification of the stability of biofunctional compounds during the shelf life and demonstration of the nutritional benefits of the product for the human body

Research project: No. 8611/11.10.2024

Authors:

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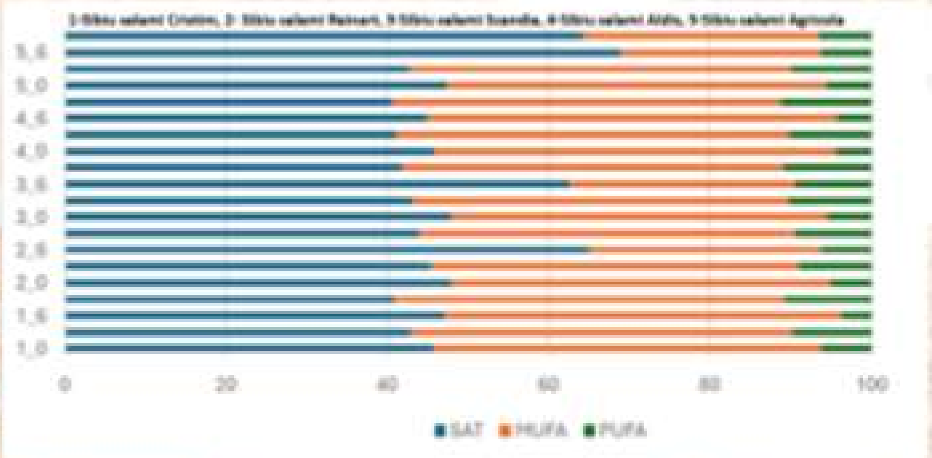
The project focuses on studying Sibiu salami, a well-known Romanian meat product, to better understand its nutritional value and health benefits. The proximate composition (moistures, proteins, fats, carbohydrates, ash and salt), water activity and nitrite content of the five Sibiu salami's provided by five Romanian producers were analyzed. Also, total fatty acids composition, with an emphasis on omega-3 and omega-6 fatty acids and mineral content were evaluated to assess the nutritional value of the salami samples. The study will also check how stable these compounds are during the product's shelf life, making sure they remain effective over time. In addition, the project aims to show how eating Sibiu salami can contribute to a balanced diet and support the human body's functions. By combining food analysis with nutritional science, the research will help promote Sibiu salami not just as a traditional food, but also as a product with real health value. This could support both consumer awareness and the development of better-quality meat products in the future.

PROXIMATE COMPOSITION VARIATION OF SIBIU SALAMI SAMPLES



COMPOSITIONAL VARIATION OF SATURATED AND UNSATURATED FATTY ACIDS IN SAMPLES OF SIBIU SALAMI

COMPOSITIONAL VARIATION OF MACRO- AND MICROELEMENTS (mg/kg) OF SIBIU SALAMI SAMPLES

VARIATION OF WATER ACTIVITY IN SAMPLES OF SIBIU SALAMI

NITRITE CONTENT VARIATION OF SIBIU SALAMI SAMPLES (ppm)

Conclusions