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## VALORISING BIRCH SAP: FROM TRADITION TO INNOVATION

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**Abstract:** *This paper aims to explore the economic and ecological potential of birch sap (*Betula pendula*), highlighting its transition from traditional use to applications in modern industries.*

*In Romania, especially in mountainous and hilly areas, birch is a common species, but the use of its sap remains limited. As traditional forestry practices face increasing criticism, birch sap valorization offers a sustainable economic alternative.*

*This sap can be processed into syrup or alcoholic beverages, and small-scale production could represent a significant source of income for birch forest owners.*

*As interest in natural products grows, recent research has explored the use of birch sap in various industries. For example, birch sap has been used as a solvent and a source of bioactive compounds in the preparation of edible films*

*The paper emphasizes the importance of integrating traditional knowledge with technological innovations to harness the full potential of birch sap. This approach not only supports the economic development of local communities but also contributes to forest conservation and promotes a sustainable lifestyle.*

### • Introduction

For centuries, birch sap has been harvested from *Betula* species, especially in Nordic and Slavic countries, as a refreshing spring tonic. Known for its subtle sweetness and natural composition, it was traditionally consumed fresh or used as a remedy for fatigue, skin conditions, and internal cleansing. In recent years, the global trend toward natural and functional products has brought birch sap back into the spotlight, not just as a beverage but as a source of bioactive compounds and wellness innovation.

### • Innovation and Modern Applications

#### 1. Functional Food and Beverage Industry

Bottled birch sap is sold in both raw and pasteurized forms.

It is often blended with fruit extracts or fermented into kombucha-like drinks.

It appeals to health-conscious consumers due to its natural and low-calorie profile.

#### 2 Cosmetics and Skin Care

Used in face masks, moisturizers, and serums for its hydrating and soothing properties.

Rich in antioxidants and trace minerals that promote skin health.

#### 3 Fermented and Biotechnological Products

Birch sap is being researched as a fermentation substrate for probiotics and bioactive beverages.

Potential applications in producing alcoholic beverages or vinegar with added health benefits.

#### 4 Sustainable Economic Development

Local harvesting of birch sap supports rural economies and sustainable forestry.

Seasonal, low-impact industry that encourages forest preservation and biodiversity awareness.



### • Conclusions

Birch sap is a unique example of how traditional ecological knowledge and modern innovation can converge. As consumer demand grows for natural, functional products, birch sap offers a promising avenue for sustainable development, nutrition, and biotechnological research.

By preserving traditional practices and investing in research, birch sap can be successfully valorised for diverse modern applications.