

ALBANIA

ЎГРВАНИЈА

*Examining bilberry's potential for treating
diabetes and coronary diseases*





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SETTING THE SCENE

Albania is a small Mediterranean country in the southeastern part of Europe, bordering the Adriatic and Ionian Seas. Geographically, Albania has a surface of 28 748 km² and most of its landscape consists of mountains and hills that occupy 76.6% of the territory. The country comprises a rich and complex hydrographic network of rivers, lakes, wetlands and underground waters. Much of Albania is within the Mediterranean geographical region, inheriting a very changeable climate.

Despite its small size, Albania is well known for a high diversity of ecosystems and habitats. The country is examining the potential of genetic resources as a strategy to expand the development and trade of products derived from medicinal and aromatic plants and to contribute to economic growth and improved livelihoods. This has been done with the valuable contribution of the UNDP-GEF Global ABS Project which supported a biodiscovery-oriented study of important genetic resources.

Currently, in Albania, there are many species and varieties of fruit-trees, olives and grapes that have a high level of adaptability to agricultural ecosystems, with high nutritional value, and which are suitable for competitive markets, particularly for bio products. The widespread presence of medicinal and aromatic plants also suggests their strategic importance as a medical and economic resources for the local population and as a source of innovation leads for the pharmaceutical sector.

Furthermore, as part of the UNDP-GEF Global ABS Project activities in Albania, a detailed pilot database of crop wild relatives (CWR) has been established, which contains information such as the classification of genus, species, group of species, family name in Latin and Albanian, a unique record number, phenology and threat status according to the IUCN red list categories. The inventory identifies a total of 86 genera of CWR in



Albania. The Global ABS Project in Albania also supports local communities and is aimed at strengthening their role along product value chains and to protect traditional knowledge in communities for their own benefit.

Albania's rural areas offer a rustic getaway experience, where many communities living in and out of national parks derive their income from agriculture, forestry, grazing and medicinal and aromatic plant collection. The latest government flagship programme called '100 Villages' aims at establishing the first successful model of integrated rural development in Albania, following the best European standards. As this initiative starts to flourish, the role of the ABS project is important in providing a clear regulatory framework and enabling environment for the development of partnerships between providers and users of genetic resources, thereby creating ample opportunities for communities, the government and the private sector alike.

Lately, the trade of medicinal and aromatic plants has become of great interest due to its increased demand in markets. This is a sector that benefits some of the poorest communities in the country, as they obtain most of their earnings by collecting and selling medicinal and aromatic plants to intermediaries and in the local markets. The sector's key players are also making important efforts to find new business models through sustainable cultivation and production that is conducive to high benefits and sustained economic growth.



Biodiscovery case

Bilberry (*Vaccinium myrtillus*), a species native to Europe and North America, is a perennial subshrub from the family Ericaceae, subfamily Vacciniaeeae. According to germplasm documentation and to scientific studies, the bilberry is widely used to improve night vision and to decrease vascular permeability and capillary fragility; moreover, the berry has various other reputed health benefits, although most interest has been focused on anthocyanin-related antioxidant effects. Antibacterial compounds from *Vaccinium myrtillus* may have important applications as natural antibacterial agents. Furthermore, bilberry has antioxidant and anticancer properties and protects against coronary diseases. Bilberry has also been reported to have anti-obesity and hypoglycaemic effects, which would bring cardioprotective benefits. In Albania, bilberry has been used in traditional remedies as treatment for diabetes and coronary diseases. The Agricultural University of Tirana (AUT), among others, is currently undertaking research to assess and further develop the biodiscovery and product development potentials of these leads.

The harvest of bilberry occurs between mid-July to the end of August and may extend till beginning of September in different areas of Albania. The production of anthocyanin in fruit tissues varies during the growth cycle of the plant. Researchers at AUT have studied the expression of flavonoid biosynthesis genes during the development of bilberry fruit in relation to the accumulation of anthocyanins, proanthocyanidins and flavones in wild berries and in berry colour mutants. The contents of anthocyanin, proanthocyanidins and

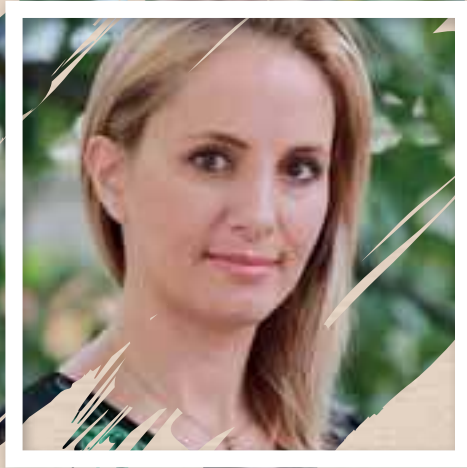
flavones in ripening bilberries were analysed with a high-performance liquid chromatography-diode array detector and were identified using a mass spectrometry interface by researchers of the Genetic and Plant Breeding WG, Department of Plant Sciences and Technology, AUT. Based on quality testing of bilberry samples from different sites of the project, samples from the north of Albania have very good potential to treat several conditions, including diabetes and coronary disease. They can be used as fresh, frozen or dried whole fruits, or processed into food supplements. With economic development and commercial use of these available natural resources, farmers in these rural areas could achieve a better standard of living.

Access to information on the benefits, opportunities, necessary commitments, investment and managerial needs to strengthen successful business models must be improved to ensure that interested members of society can effectively engage in the process. Technical assistance to local producer organizations with potential to develop local ABS products must also be improved when compelling opportunities have been identified.

Since the collection and manipulation of medicinal plants are considered important processes for the development of commercial products, the conservation of wild plants and, improved livelihoods of local communities, they are regulated by the Law No. 10120, on the "protection of natural medicinal, ether oil and tanifer plants".



EYEWITNESS STATEMENT



“Scientific research should be an important part of local and central decision-making. In 2014, Albania became a party to the Nagoya Protocol, but in order to be fully effective, the NP should be further developed into policy documents to be included in national legislation. Linking research to practice, such as provision of economic benefits from genetic resources will contribute to improve the livelihoods of local communities that use these resources.”

MS ORNELA ÇUÇI, Deputy Minister of Tourism and Environment





In fine focus: SDGs implemented by the biodiscovery case

The still untapped biodiscovery potential of Albanian's genetic resources in strategic sectors, such as the aromatic and medicinal sectors, is significant. As shown by the bilberry biodiscovery case illustrated above, researchers at the Agricultural University of Tirana and partners have undertaken ground-breaking work on the characterization and study of the biochemical value from Tropoja bilberry and Kukesi bilberry. Further work along their production value chain has already increased the commercial and export value for local, primary, or processed products and for the concerned local communities. By supporting such ongoing efforts, while also establishing a clear and transparent legal framework to regulate ABS activities, the UNDP-GEF Global ABS Project in Albania contributes to achieving Target 15.6 (SDG 15) which is to promote the fair and equitable sharing of the benefits arising from the utilization of genetic resources and to facilitate appropriate access to such resources, as internationally agreed. This will foster local development and the empowerment of

communities, including access to, ownership and control over natural resources and appropriate new technologies.

Additional SDG-related achievements that are directly supported by the biodiscovery case in Albania include: Target 2.5 (SDG 2), on the preservation and sustainable management of agricultural ecosystems including plant and animal genetic resources as well as associated traditional knowledge; and SDG 3, namely, by promoting partnerships in R&D in the context of the EU integration process, including towards the development of new drugs that can help combating epidemics, neglected and other communicable diseases. Finally, it is worth mentioning the UNDP-GEF Global ABS project's contribution to SDG 17, Targets 17.9, 17.14 and 17.15, which highlight the importance of international cooperation for reviewing the legal framework and, as necessary, sectorial policies to make them ABS coherent including by promoting multi-stakeholder partnerships.





Legal and political enabling environment for ABS and the Nagoya Protocol

Albania adopted its first law addressing access and benefit sharing in 2006, Law No. 9587 on biodiversity protection. The Biodiversity Protection Law contains provisions on access to in-situ and ex-situ genetic resources, as well as traditional knowledge, innovations and practices of local communities, but Albania lacks the regulatory measures required to make the provisions operational.

In accordance with national Law No. 113/2012 Albania acceded to the Nagoya Protocol on 29 January 2013. Albania was awarded candidate status by the European Union (EU) in 2014, and must now harmonize its legislation with the, *acquis*, the body of

common rights and obligations that is binding to all EU Members States.

Albania adopted the Strategic Policy Document for the Protection of Biodiversity 2016, which incorporates commitments to implement the *acquis* and the Nagoya Protocol. UNDP is currently providing support for the development of a regulatory framework on ABS that is in conformity with the Nagoya Protocol, Regulation (EU) No 511/2014 of the European Parliament and of the Council of 16 April 2014 on compliance measures for users, and European Commission Implementing Regulation (EU) 2015/1866 on the register of collections, monitoring user compliance and best practices.





MESSAGE FROM AN SDG ADVOCATE



“Regulated access to genetic resources and a fair benefit sharing regime in Albania will empower communities and create bridges of cooperation with the private sector as a key actor in reducing biodiversity over-exploitation, while the government enables equitable sharing of benefits all along the supply chains. This triangle is at the core of the sustainable development goals and the right recipe for producing inclusive growth while preserving common goods in Albania.”

MS ELVITA KABASHI, Programme Officer, Head of Environment and Climate Change, UNDP Albania.