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For further information about the DanuBioValNet project, you will find a short description in this document. To learn more and to download additional resources please refer to the project website <http://www.interreg-danube.eu/approved-projects/danubiovalnet>. The information is provided without assuming any legal responsibility for correctness or completeness. The data presented in the report are based on the information given by the project partners.

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List of abbreviations

ABC	Association of Business Clusters - Bulgaria
BNAEOPC	Bulgarian National Association of Essential Oils, Perfumery and Cosmetics
BSO	Business Support Organization
DTP	Danube Transnational Programme
NGO	Non-Governmental Organization
SMEs	Small and Medium-sized Enterprises
VC	Value Chain

DanuBioValNet project

The DanuBioValNet project is a cross-clustering partnership for boosting eco-innovation by developing a joint bio-based value-added network for the Danube Region. DanuBioValNet stands for development of a joint bio-based industry cluster policy strategy, clusters connecting enterprises transnationally, new bio-based value chains in the Danube Region and eco-innovations for supporting regional development.

The DanuBioValNet project, launched in 2017 through a cross-regional partnership involving 17 partners from 10 Danube regions, will enhance transformation from a fossil-based economy towards an economy using renewable resources by creating bio-based value-added networks. The project will connect Danube actors in a bio-based industry to minimize greenhouse gases and to optimize biomass resource utilization. These measures are intended to improve the sustainability and regional development through diversification of the local economy while positively affecting the workforce. The focus on emerging transnational cooperation of clusters should serve to foster the bio-economy and eco-innovations and should lead to a strengthening of the regional economies.

The development of new bio-based value chains from primary production to consumer markets needs to be done by connecting enterprises from different regions and industries. However, due to a missing holistic transnational approach, the Danube actors in the current bio-based industry still operate disconnected and cannot properly benefit from their potential. Therefore, the aim of this project is to develop new methods, strategies and tools to connect enterprises transnationally. Clusters represent groups of industries that are closely linked by common products, markets, technologies and interests. They are chosen to organize and carry forward the needed industry cooperation for the creation of new value chains. Properly performing clusters can help to upgrade industrial practices, generate new knowledge and contribute to regional policy-making.

The partners of the DanuBioValNet agreed that phytopharma, eco-construction and bio-plastic/advanced packing (bio-based packaging) have a high potential for improvement of their respective value chains, and hemp is considered as a raw material suitable for all the three value chains. Project efforts are designed to allow partners to connect SMEs, farmers, universities, and research institutes within a value-added DanuBioValNet network. The partners intend to develop and implement a long-term, industry-driven roadmap for such collaboration along the entire value chain based on cluster partnerships for these processes. Focusing on the selected high potential sectors, and harnessing the nature of regional clusters within wider cross-regional selected value chains, DanuBioValNet will implement pilot actions, involving SMEs, universities, research institutions, policymakers, and civil society among others. The pilot actions serve as the prerequisite for creating a blueprint for cross-regional cooperation

Workshop „Danube Phytopharma Forum - Converting bio-based resources into successful phytopharmaceutical products”

The workshop “Danube Phytopharma Forum: Converting bio-based resources into successful phytopharmaceutical products” was co-organized by the Association of Business Clusters (ABC), Bulgaria, and the lead partner of the project DanuBioValNet of the Danube Transnational Programme - BIOPRO Baden-Württemberg GmbH in collaboration with Green Synergy Cluster and Bulgarian National Association Essential Oils, Perfumery and Cosmetics.

The event was held on 9 and 10 of May 2019, in Sofia and Plovdiv region accordingly, Bulgaria. The first day provided a workshop for experience exchange and co-creation of innovative ideas which took place in the Lab Complex in Sofia Tech Park. On the second day the participants had the opportunity to visit Bulgarian rose fields, distilleries, extraction facilities and companies active in the phytopharmaceutical value chain.

The event brought together interested companies, clusters managers, business support organisations and experts from academia of the Danube region. The objective was to create innovative ideas for new products and projects by facilitating cross-country cooperation of the stakeholders, and thus to launch the macro-regional network along the value chain “Phytopharma”.

The most significant aspects discussed during the event are related to cooperation, improvement of legislation and also collaboration among clusters to reduce costs related to certification when it comes to bio-based products and the services concerning their market positioning. All the proposals and suggestions aimed and were driven by eco-innovative approaches to create a joint bio-based value-added network for the Danube Region and encourage citizens to make use of natural ingredients in their everyday life and establish habits as far as sustainable living and interaction with the environments is concerned.

Background

In order to foster the innovation potential of bioeconomy, while reducing the negative social and environmental effects, the main goals are related to addressing the technological and societal challenges in building a bio-based value chain with an increased emphasis on the sustainable use of natural resources and competitiveness. The role of value chains creation in the field of bioeconomy focuses on establishment of a framework for a stronger coherence between the various policies and funding instruments at EU and Member State level as well as on a better alignment of the research and development initiatives for innovations in bioeconomy. It will highlight the policy initiatives needed to deliver the full potential of bioeconomy sectors in the Danube region.

In this aspect considerable importance is to be assigned to Phytopharma VC, especially as far as data collection and cluster mapping of the phytopharmaceutical industry are concerned. It proved to play a pivotal role in identifying and connecting relevant stakeholders in the field to cooperate and establish collaborative platforms. Creating the “ecosystem” for the development of the VC in the field of Phytopharma will allow increasing the number of the cluster initiatives which appears to be relatively small according to the report we have elaborated. The project DanuBioValNet contributes to extension of the number of initiatives and topics related to the sector.

Participants

The Forum attracted 22 participants representing different project target groups from 8 countries (Table 1). This shows the relevance of the Phytopharma for discussion on ministerial, business, cluster and academic levels and the importance of connecting respective stakeholders along this VC.

During the site visits 3 SMEs were also reached by interacting of 2-3 their representatives with the forum participants. For example, in “Galen-N HQ” company the group was welcomed and greeted by the owner of the company and after that one expert made introduction to the distillery facilities and process and another expert – to the extraction and the laboratory.

Country	Projects target group				Total per country
	Regional public authority	BSO	SMEs	Higher education & research	
Austria		1	1		2
Bulgaria		6	1	2	9
Croatia	1				1
Czech Rep.		1			1
Germany		1	1	1	3
Romania	1				1
Serbia		1	1		2
Slovenia	1		1	1	3
Total per group	3	10	5	4	22

Table 1: Participants of the workshop “Danube Phytopharma Forum”

Day 1

The workshop “Danube Phytopharma Forum: Converting bio-based resources into successful phytopharmaceutical products” was held on 2 days.

The first day provided a workshop for experience exchange and co-creation of innovative ideas, and took place in the Lab Complex in Sofia Tech Park. It was divided into two parts – introductory and action.

The Introductory part was opened by Svetlin Ranguelov, representative of the hosting partner Association of Business Clusters – Bulgaria, who welcomed and greeted the participants on behalf of DanuBioValNet. After that Olga Boyarintseva, BIOPRO Baden-Württemberg, lead partner, introduced the project, partners, main goals and target groups.



Picture 1: Olga Boyarintseva, BIOPRO and Svetlin Rangelov, ABC, opening the workshop

Mr. Rangelov continued with outlining the objectives of the workshop, the opportunities for the participants and the programme of the day. Afterwards, two presentations helped to set the scope of the workshop. The first was delivered by Gergana Andreeva, Bulgarian National Association of Essential Oils, Perfumery and Cosmetics (BNAEOPC) and the participants got insights about the importance of the Phytopharma topic in Bulgaria, the main sources, history and current status of the production, opportunities, perspectives and problems.



Picture 2: The Presentation of Gergana Andreeva, BNAEOPC

Afterwards Liyana Adjarova, Green Synergy Cluster, shared with the audience the expertise about conversion of bio-based resources in Bulgaria, the EU “Bank” of Medical and Aromatic Plants. She provided information about the key market figures, traditions, trends, challenges, certification schemes and standards, and many successful product examples. These presentations served as a spark for the further discussion

The introductory part continued with a self-presentation of the workshop participants whom were given 2 minutes each to talk about themselves, their company/organization, main products/services (so-called Elevator pitch format). Several visual presentations were delivered by Dr. Zorica Crnjak Orel (SI), Mariya Ukhanova (GE), Markus Pasterk (AU), Ondřej Krásný (CZ). This was a great way to get to know each other and quite useful for further discussions.



Picture 3: The presentation of Mariya Ukhanova, University of Applied Forest Sciences Rottenburg, Germany

After the first brake, Olga Boyarintseva opened the door for the main topic with a Problem statement within the value chain (VC) Phytopharma. She briefly described the VC, its importance and the main gaps/problems in the Danube region, based on one of the outputs of the project - the “Synthesis Value Chain Mapping Report. Phytopharmaceutical Industry”.

Afterwards, a discussion, moderated by Madlena Vladimirova (ABC) helped the participants share their personal experience as actors of the VC Phytopharma. It allowed them to express their point of view and all the main issues brought were written on cards. During the lunch break the hosts carefully studied the similarities between the raised topics, combined the cards into 4 major themes and divided them for the upcoming group discussion.

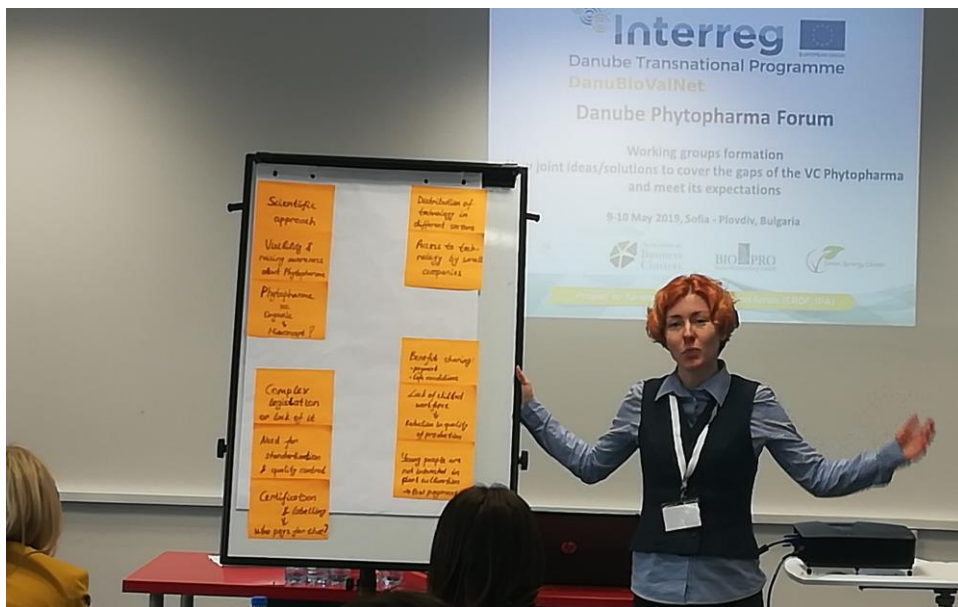
After the lunch, the participants had the opportunity to visit the “Laboratory for extraction of natural products and synthesis of bioactive compounds”, located in the same building. Assist. Prof. Angel Konakchiev, PhD (Bulgarian Academy of Sciences · Institute of Organic Chemistry with Center for Phytochemistry), the head of the lab, presented this brand new complex designed to perform problem-driven and industry oriented R&D which are directed to efficient, value-added and environmentally-friendly utilization of the national bio-resources and valorization of industry by-products and biowastes to obtain products with high added value. Mr. Konakchiev with the assistance of his colleague - Assoc. Prof. Antoaneta Trendafilova, PhD, shared the information about the main equipment, services and activities of the lab, the opportunities it provides for Phytopharma VC and answered the questions of the visitors.



Picture 4: Visiting the Laboratory for extraction of natural products and synthesis of bioactive compounds

The workshop continued with the Action Part - Moderated expert discussion. The workshop participants were divided and each of the 2 groups received two problems to discuss within 1 hour. The goal was to look for new joint ideas/solutions to cover the gaps of the VC and meet its expectations. The example questions to focus on were:

- What kind of products/services can be developed?
- Which stakeholders can help their development or be responsible for that?
- How can I (my company) contribute to that?



Picture 5: Olga Boyarintseva, BIOPRO presenting the 4 major themes for discussion at the start of the Group work

Group work

Group 1

Group 1 consisted of the workshop participants from Austria, Germany, Romania, Serbia and Slovenia and was moderated by Olga Boyarintseva from BIOPRO Baden-Württemberg GmbH. Speaking about problems in the Phytophama industry, the group focused firstly on a complex topic related to *the lack of skilled workforces, which results in reduction in quality of production. For instance, young people are not interested in plant cultivation because of low salaries. Benefits sharing (again, payment or life conditions) was also mentioned as a part of the problem.*



Picture 6: Discussion of group 1 moderated by Olga Boyarintseva, BIOPRO

The group actively discussed a range of ideas what could be done in order to improve the situation with the workforce in the Phytophama industry, what kind of measures could be taken and what could be the best way to implement them as well as who could be responsible for that. The results of the brainstorming are described in table 2.

Measures	Responsible stakeholders	Implementation
<ul style="list-style-type: none"> • First and foremost, image of the whole Phytopharma industry has to be improved, so as not only its market segments look attractive for the young generation, but also, for instance, the agricultural segments, e.g. plant cultivation • Another measure implies branding and “selling” on in particular local/regional markets • The latter cannot be possible without the development of regions in general • Education and industrial trainings play either a key role in growing future professionals for 	<ul style="list-style-type: none"> • Clusters and associations • Government • Regional development agencies • Business support organizations 	<p>To implement the suggested measures, the following ways were suggested:</p> <ul style="list-style-type: none"> • Media work and publicity • Promotion of good practice examples, e.g. by story telling • Career fairs to advertise the Phytopharma sector on the job market • Reduction of taxes and financial incentives, e.g. for start ups • Following the fair trade principles • Providing a reasonable environment for living for people working in the least attractive segments of Phytopharma • EU programs, for example - LEADER¹ • Spreading the knowledge about the Bioeconomy concept

¹ The LEADER program is a European Union initiative to support rural development projects initiated at the local level in order to revitalize rural areas and create jobs.

the Phytopharma industry		<ul style="list-style-type: none"> • Regional marketing • Disruptive innovations
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Table 2: Results of group work - Group 1, part 1

Having some time left, Group 1 decided to work on another problem regarding *the distribution of technology in different sectors of the Phytopharma industry and access to technology by small companies*. The participants also underlined that there is a need in the clarification of defining what actually technology in which sectors implies, e.g. data, equipment, production processes. Table 3 represents the results of the fruitful discussion.

Measures	Responsible stakeholders	Implementation
A suggested measure is creating of small companies, e.g. “incubators”, which could work in different segments of the Phytopharma industry and get the access to the state-of-the-art technology	<ul style="list-style-type: none"> • Clusters • Government • Small and medium-sized enterprises (SMEs) • Business support organizations • “Big players” of the industry 	<p>In order to achieve positive results in carrying out the mentioned measure, the following channels could help:</p> <ul style="list-style-type: none"> • Support programs at regional, country and cross-country levels • Direct financial support • Fostering networking among different actors of the industry • Development of innovations centers

Table 3: Results of group work - Group 1, part 2

Group 2

Group 2 consisted of the workshop participants from Austria, Germany, Romania, Serbia, Bulgaria, Czech Republic, Croatia and Slovenia and was moderated by Madlena Vladimirova from ABC.

The group focused on two sets of topics. The first one was devoted to *visibility and raising awareness about Phytopharma, the misconception that Phytopharma equals Organic, and the scientific approach needed*. Afterwards, the group discussed the *lack of complex legislation, need of standardization and quality control, and certification and labelling processes*.



Picture 7: Group 2 moderated by Madlena Vladimirova, ABC

The results of both discussions are presented in following table:

Measures	Responsible stakeholders	Implementation
<ul style="list-style-type: none"> • Firstly, clarity of definition when speaking about “pharma”. There was a discussion to precisely define specific terms used to describe the meaning of the complex field of the bio-based economy, especially having a unified approach when mentioning phytopharma • Another measure is to achieve better control and labelling of the products. The later could be possible only if the policy makers are more involved, which will also improve marketing of products and prevent “false” or “incorrect” information outreaching final consumers • A very important measure is to improve the certification of bio-based products in order to achieve a better transparency • The key role clusters have to play apart from the specific expertise and experience they can provide is also expressed in terms of costs reduction, which is crucial for the sector • Another measure is to achieve a clear identification of industry stakeholders within the countries of all project partners and the Danube region as a whole. It will allow an overview of the parties involved and bring the cooperation closer between clusters and SMEs members of the clusters from different countries • Clear measures for precisely defined rules and regulations for hemp and its market positioning at the EU level was identified 	<ul style="list-style-type: none"> • Clusters and associations • Government • Regional development agencies • Business support organizations • Small and medium-sized enterprises (SMEs) • Media and public relations • Certification authorities • EU policy makers 	<p>To implement the suggested measures, the following ways were suggested:</p> <ul style="list-style-type: none"> • The transnational cluster access and interaction between different “players” is of pivotal importance • The EU policy with clear definitions and improved control mechanism • It was agreed that during the steps of certification, simplified and clear procedures are to be elaborated taking into consideration the right balance between requirements and needs of the sector • It was proposed to perform mapping of the existing SMEs and incorporating the key data-base in a service directory to be available for clusters and businesses in the Danube region and across the EU as a whole • Media work and publicity • Creating legislation for hemp

Table 4: Results of group work - Group 2



Picture 8: Group work presentations - Mariya Ukhanova, Andrea Bruckner for Group 1 and Madlena Vladimirova for Group 2

Collaboration for closing the Phytopharma VC

After the presentation of the group work results, the workshop continued with a collaborative discussion about future products, services, projects, partnerships and cooperation opportunities. The participants shared their vision on future growth and mutual success along the VC:

- What kind of products or services are you interested in to further develop the existing one or create a new one?
- What kind of projects are you looking to participate in?
- What kind of partners (companies, research institutions, other organizations) you are looking to cooperate with?
- What kind of help and support you are looking for?

Madlena Vladimirova introduced the idea raised during the group discussion, namely the need of having a common database including all stakeholders of the bioeconomy value chains in the Danube region, in order to be open, maintained, regularly updated and sustainable. The idea was supported by the participants.

Liyana Adjarova addressed the issue of certification and the need of creating a project which will promote the necessity of certification of the bio-based products and will provide help for the preparation for it. This proposition was also broadly supported.

Mariya Ukhanova (University of Applied Forest Sciences Rottenburg, Germany), introduced the project “Wild plants collections and their economic relevance for the medical and healthcare sector” and mentioned that it is actively looking for partners with knowledge and experience from countries rich with wild plants to join the project.

Ondřej Krásný (Czech Hemp Cluster) informed the participants that the cluster is also looking for partners to cooperate in development of the hemp industry.

Andrea Bruckner (Business Upper Austria) invited the stakeholders interested in future common projects in the field of Bioeconomy to connect with the organization she represents and gave a specific example with the production of essential oil from grape seeds.

Niklas Schäfer (Dr. Gustav Klein GmbH & Co. KG, Germany) mentioned that the company is looking for raw materials suppliers for their Phytopharma production.

Zorica Crnjak Orel (Higher professional school for cosmetics and wellness, Slovenia) underlined that there is a need in supporting people who grow plants, e.g. possibly create a project focused on promoting relevant activities and looking for policy changes.

Zorica Maric from Serbia informed the participants how the company phy2TRACE d.o.o. can help Phytopharma industry by introducing transparency and traceability of product-related flows, information-related flows, actors-related flows and money-related flows.

After the workshop finished, the group travelled to Plovdiv by bus where a networking dinner was organized.

Workshop summary

Acknowledging different understandings of sustainability may help broaden the debate on the bio-based economy and allow the exploration of multiple transition pathways and their potential sustainability implications. It could also help uncover the seemingly contradictory visions and strategies in a need to develop methods and tools that could support the discussion on the viability of the bio-based economy as a whole. Efforts are underway, but there is still a need to determine priorities and address trade-offs. Raising awareness about the existing problems will help the Danube region and the EU as a whole encourage versatile stakeholders to get more engaged, drive the industry and contribute to a sustainable impact on society and resilient environment.

There was a strong need identified and given as a recommendation related to interministerial collaboration among ministries and their subordinated bodies at the country and cross-country level. Moreover, it was concluded that, apart from the state, local authorities and the industry, each active civil society member, as an intelligent consumer, should undertake steps, which move and develop the bio-based economy forward. It was concluded that clusters and networks address politicians, central and local ones, thus laying the foundations for regulations to foster the development of the Phytopharma value chain and bioeconomy as a whole.

The workshop participants underlined the importance of the sustainability of the current project, e.g. by initiating a business model to maintain its outcomes.

Day 2

The second day started with a visit to Rosa Impex Cosmetic Company Ltd near Plovdiv (phytopharma production facility). The participants were informed about the history, an impressive product line and a broad market reach. Afterwards the group was introduced to the production facilities and shown examples of machines for filling packaging, etc. The conveyers working in real time for producing different end products were observed with interest and raised many questions.



Picture 9: Visiting production lines of Rosa Impex Cosmetic Company Ltd.

The next stop was the brand new building of Vitanea (bio juices, products and supplements). The group was welcomed by company owner Christo Krachanov who inspired everyone with his passion about the product. He invited the participants to the facility where the final steps for the production line assembly were taking place. The group observed the cold storage for the main source – Aronia berry, tried raw berries and the juice made of it also learnt about the production technology with machines patented by the Vitanea owner. A lot of information about growing and marketing the product was introduced.



Picture 10: Trying raw berries in the cold storage while visiting Vitanea

The tour continued with visiting Galen-N HQ (distillery and extraction facility for phyto substances for pharmacy). The owner showed the participants a distillery with impressive facilities and machinery for producing rose oil and rose water. Experts responsible for the production explained the process, presented an extraction facility and showed a laboratory.



Picture 11: Visiting Galen-N HQ, rose oil distilling machines

A few kilometres away the group visited a rose field and was introduced with some valuable information about the growing and picking the roses.



Picture 12: Visiting a rose field