cost
EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

Funded by the European Union

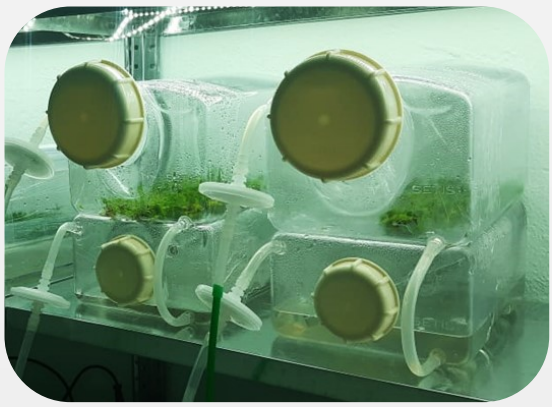
COPYTREE NEWSLETTER

No. 11, April, 2026

CA 21157 www.copytree.eu

"European Network for Innovative Woody Plant Cloning"

Collaboration on a European level between experts for sharing and applying innovative *in vitro* technology on woody plants



Enjoy your reading!

1. ACTIVITIES

6th TRAINING SCHOOL

1.1. Seed, In Vitro, and Cryogenic Approaches in Forest Tree Genetic Resources Conservation

From **April 13–15, 2026**, the Kostrzyca Forest Gene Bank (Poland) hosted a successful Training School on forest tree genetic resource conservation, bringing together scientists and students for expert lectures and hands-on laboratory training in biotechnological approaches to germplasm preservation.

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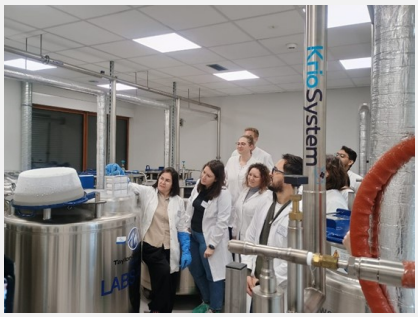
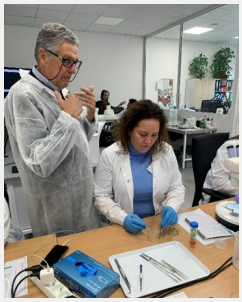
The training was organized in collaboration with scientists from the Institute of Dendrology, Polish Academy of Sciences in Kórnik (Poland).

Participants were introduced to key topics such as seed storage strategies, *in vitro* culture systems, epigenetic stability in stored plant material, and the potential of isolated endosperm culture.

The cryopreservation module focused on a range of techniques, including preservation of plumules, shoot tips, and embryogenic tissues of conifers and broadleaf species, as well as forest tree seeds. Practical sessions allowed participants to gain experience in artificial seed production, anatomical analyses, and multiple cryogenic methods such as droplet vitrification and cryo-plate techniques. In addition, participants had the opportunity to become familiar with the infrastructure and day-to-day functioning of the Kostrzyca Forest Gene Bank, gaining insight into real-world operations of long-term forest genetic resources conservation. The Training School provided a valuable platform for knowledge exchange between leading experts and young scientists, strengthening international collaboration within the COST network in the field of forest genetic resources preservation.





1.2. Hands on, Cells Alive: Advancing Protoplast Biotechnology with COPYTREE

7th TRAINING SCHOOL

The COPYTREE Training School "Protoplast Biotechnology" was successfully held in Zurich (Switzerland) from **22 to 24 April 2026** as a three-day, intensive training activity within COST Action CA21157.

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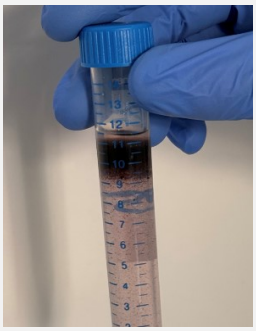
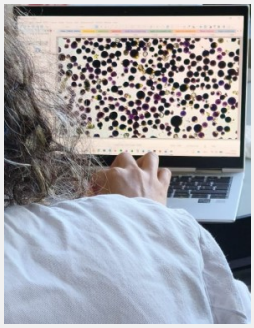
The event brought together early-career and more experienced researchers from eight countries (Italy, Türkiye, Greece, Bulgaria, Azerbaijan, Spain, Chile, and the Czech Republic), highlighting both the international reach of the COPYTREE network and the strong demand for advanced, hands-on biotechnology training. It also reflected the growing interest in protoplast-based technologies across diverse plant systems and research contexts, fostering a highly interdisciplinary environment.

The training school combined integrated laboratory sessions and focused lectures covering all key steps of protoplast-based experimentation, including protoplast isolation from different plant tissues, assessment of cell viability, transfection, embedment for culture systems, and downstream applications in functional genomics, genome editing, and plant breeding. Particular emphasis was placed on allowing participants to critically evaluate and adapt protocols for their own research systems. The course was delivered by a team of four experienced trainers from Belgium, Italy, and Türkiye, who were closely involved in both theoretical and practical components.





This strong trainer–trainee and trainee–trainee interaction fostered open scientific discussion, the exchange of best practices, and capacity building across disciplines and career stages, while also encouraging critical thinking and active engagement. In addition to the scientific program, dedicated networking and social activities supported the development of new collaborations, facilitated informal knowledge sharing, and further strengthened the sense of community within the COPYTREE Action.

Overall, the training school significantly enhanced methodological competencies among participants and contributed to reinforcing a shared framework for protoplast-based approaches across the COST network. It also promoted greater consistency in experimental design and protocol adaptation, while strengthening participants' confidence to implement these techniques in their own research environments.

1.3. Publications that acknowledged CopyTree

Bobrova, O., Faltus, M., Husak, V., Zamecnik, J., Tunklova, B., Narozhnyi, S., & Bilavcik, A. (2025). Alginate Hydrogel with Pluronic F-68 Enhances Cryopreservation Efficiency in Peach Germplasm. *Gels*, *11*(12), 947. https://doi.org/10.3390/gels11120947

Bobrova, O., Husak, V., Bilavcik, A., & Faltus, M. (2026). Hydrogel Systems in Plant Germplasm Cryopreservation: A Comprehensive Review. *Gels*, *12*(2), 106. https://doi.org/10.3390/gels12020106

Eisold, A.-M. E., Hillenbach, H., & Zoglauer, K. (2026). Optimization of the initial steps of the Nordmann fir (*Abies nordmanniana* [Stev.] Spach) cryopreservation protocol. *Cryobiology, 123*, 105626. https://doi.org/10.1016/j.cryobiol.2026.105626

Yücesan, B. Mapping thematic patterns in plant tissue culture research: a citation network perspective. *In Vitro Cell.Dev.Biol.-Plant* (2026). https://doi.org/10.1007/s11627-026-10638-5

1.4. Recognition of High-Quality STSMs within COPYTREE

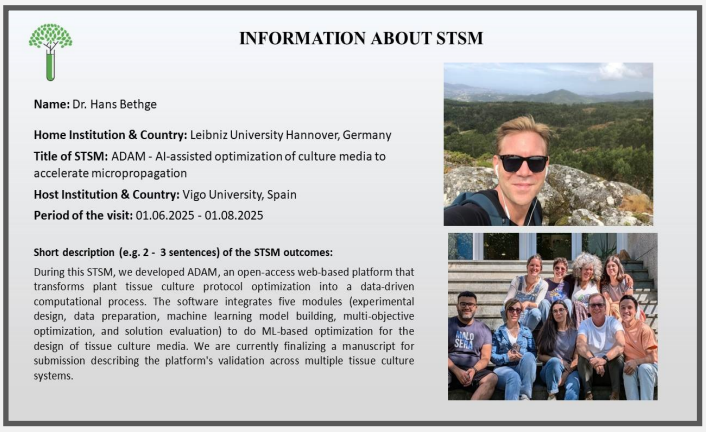
The reports of the Short-Term Scientific Missions (STSMs) realised during the previous COPYTREE Grant Period were evaluated by five volunteer members of the Management Committee.

We will have the pleasure of hearing presentations from these young researchers during the **final COPYTREE Conference in Tirana,** where they will share the objectives, methodologies, results, and experiences gained through their mobility activities.

Their presentations will further demonstrate the scientific value of the STSM programme and its contribution to strengthening the next generation of researchers within the European COPYTREE community.

The selected STSM grantees are:

- Hans Bethge
- Sara Yasemin
- Olha Yaroshko



INFORMATION ABOUT STSM

Name: Dr. Hans Bethge

Home Institution & Country: Leibniz University Hannover, Germany

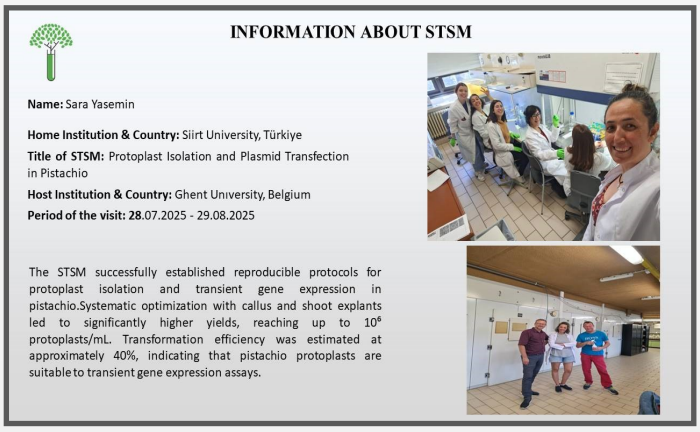
Title of STSM: ADAM - AI-assisted optimization of culture media to accelerate micropropagation

Host Institution & Country: Vigo University, Spain

Period of the visit: 01.06.2025 - 01.08.2025

Short description (e.g. 2 - 3 sentences) of the STSM outcomes:

During this STSM, we developed ADAM, an open-access web-based platform that transforms plant tissue culture protocol optimization into a data-driven computational process. The software integrates five modules (experimental design, data preparation, machine learning model building, multi-objective optimization, and solution evaluation) to do ML-based optimization for the design of tissue culture media. We are currently finalizing a manuscript for submission describing the platform's validation across multiple tissue culture systems.



INFORMATION ABOUT STSM

Name: Sara Yasemin

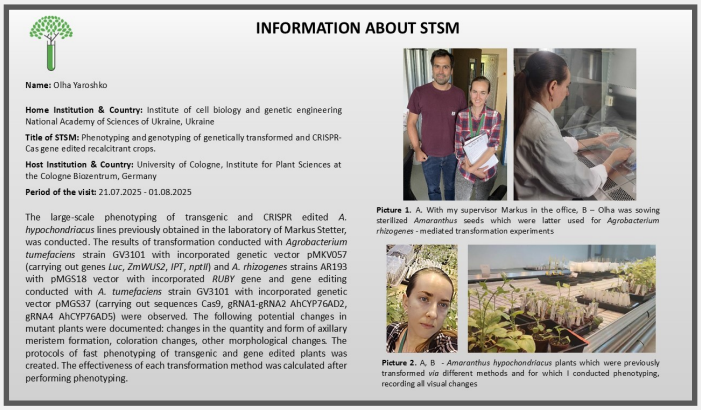
Home Institution & Country: Siirt University, Türkiye

Title of STSM: Protoplast Isolation and Plasmid Transfection in Pistachio

Host Institution & Country: Ghent University, Belgium

Period of the visit: 28.07.2025 - 29.08.2025

The STSM successfully established reproducible protocols for protoplast isolation and transient gene expression in pistachio.Systematic optimization with callus and shoot explants led to significantly higher yields, reaching up to 10^6 protoplasts/mL. Transformation efficiency was estimated at approximately 40%, indicating that pistachio protoplasts are suitable to transient gene expression assays.



INFORMATION ABOUT STSM

Name: Olha Yaroshko

Home Institution & Country: Institute of cell biology and genetic engineering National Academy of Sciences of Ukraine, Ukraine

Title of STSM: Phenotyping and genotyping of genetically transformed and CRISPR-Cas gene edited recalcitrant crops.

Host Institution & Country: University of Cologne, Institute for Plant Sciences at the Cologne Biozentrum, Germany

Period of the visit: 21.07.2025 - 01.08.2025

The large-scale phenotyping of transgenic and CRISPR edited *A. hypochondriacus* lines previously obtained in the laboratory of Markus Stetter, was conducted. The results of transformation conducted with *Agrobacterium tumefaciens* strain GV3101 with incorporated genetic vector pMKV057 (carrying out genes *Luc*, *ZmWUS2*, *IPT*, *nptII*) and *A. rhizogenes* strains AR193 with pMGS18 vector with incorporated *RUBY* gene and gene editing conducted with *A. tumefaciens* strain GV3101 with incorporated genetic vector pMGS37 (carrying out sequences Cas9, gRNA1-gRNA2 AhCYP76AD2, gRNA4 AhCYP76AD5) were observed. The following potential changes in mutant plants were documented: changes in the quantity and form of axillary meristem formation, coloration changes, other morphological changes. The protocols of fast phenotyping of transgenic and gene edited plants was created. The effectiveness of each transformation method was calculated after performing phenotyping.

Picture 1. A. With my supervisor Markus in the office, B – Olha was sowing sterilized *Amaranthus* seeds which were latter used for *Agrobacterium rhizogenes* - mediated transformation experiments

Picture 2. A, B - *Amaranthus hypochondriacus* plants which were previously transformed *via* different methods and for which I conducted phenotyping, recording all visual changes

2. Upcoming Events

4th CONFERENCE OF COPYTREE

From lab to forest and orchard:

The Final CopyTree Conference

14-16th September, 2026
Academy of Sciences of Albania

Local Organizer:
Valbona Sota

Registrations are now open

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Abstract deadlines:
31 May 2026 – oral presentations
15 June 2026 – poster presentations

The five Working Groups will actively interact throughout the conference, fostering integration of knowledge and strengthening collaboration across disciplines. Five keynote speakers, each representing one of the Working Groups, will provide comprehensive overviews of key developments and future perspectives in their respective areas.

Poster sessions, meetings and social activities will complete the program.

A post conference tour to the Southern Albania is planned for September 17-18th 2026

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WEBINAR SERIES

We are pleased to announce the final webinar of the EU-COST Action CopyTree Webinar Series, which will take place on

Tuesday, 20 October 2026 (15:00–16:30 CEST) via ZOOM.

This concluding session will feature two special presentations:

- **"Underestimated pathogens — viruses of forest and urban trees"** by **Carmen Büttner** (Humboldt University Berlin, Germany)
- **"From COST Action to impact: celebrating our COPYTREE journey and the community we built"** by **Stefaan Werbrouck**, reflecting on the achievements of the Action and discussing perspectives and opportunities beyond COPYTREE.

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3rd Call for Conference Grants

Conferences during the period 01.01.2026 – 06.10.2026

Call will be open until 07.06.2026 or when the funds allocated to this have been exhausted.

Submission of applications in e-COST from 28.11.2025

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3. COMMUNICATION PLATFORMS

WEBSITE & SOCIAL MEDIA PAGES

- **COST Website**: https://www.cost.eu/actions/CA21157/
- **CopyTree Website:** www.copytree.eu

Please follow us on social media pages:

INTERNAL AREA OF COMMUNICATION

Are you already an approved CopyTree member?

Join our community area by signing up in this link:
https://www.copytree.eu/join-us

After signing up, join different working groups in interactive discussions.

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