



DreamFungi

A grassroots innovation project to locally research, develop and produce a biocomposite material using mycelium as an alternative sustainable material for packaging, construction, apparel and accessories industries

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Objective

The key objective of this document is to showcase our motivation, problem and solution to co-create a sustainable material using Mycelium in Sri Lanka and to receive support in the form of impact investments (fund and equipment), project collaborations and personal engagements (knowledge and technology transfer).

With your impactful support, this future-oriented and climate-neutral innovation will bring an added benefit to underserved communities to build their environmental awareness, intellectual capacity and life-changing livelihood opportunities.

DreamSpace Academy & Bio Lab

DreamSpace Academy is a community innovation centre tackling local socio-economic and environmental challenges with challenge-based learning and grassroots innovation. Our mission is to achieve sustainable development goals in Sri Lanka by empowering underserved communities, protecting environmental ecosystems, facilitating peacebuilding and fostering sustainable startups.

Our empowerment lifecycle consists of five stages :

- Discover motivated candidates from underserved communities
- Provide them interdisciplinary challenge-based learning (storytelling to biotechnology)
- Assist them in developing grassroots innovations for local challenges
- Develop their domain knowledge by partnering them with international experts
- Build their sustainable startups to solve socio-economic and environmental challenges

Our Bio Lab empowers next-generation entrepreneurs for building a sustainable bioeconomy in Sri Lanka. It provides open access to an advanced infrastructure for training, research and innovation to harness the potential of biogenic resources within ecological boundaries.

DreamFungi

It is a grassroots innovation project to locally research, develop and produce a biocomposite material using mycelium as an alternative sustainable material for packaging, construction, apparel and accessories industries. This future-oriented and climate-neutral innovation will bring an added benefit to underserved communities to build their environmental awareness, intellectual capacity and life-changing livelihood opportunities.



Mycelium Packaging [1] | Mycelium Furniture [2] | Mycelium Leather [3]

Mycelium can be customised to have different properties to be a super-strong, water, mould and fire-resistant material; therefore, it can replace non-degradable and non-environmental-friendly materials causing a massive impact on the environmental ecosystems.

Several solutions are available in the global north to tackle local environmental challenges. However, they have to be imported into Sri Lanka, making it less accessible, affordable and sustainable. Therefore, this project will mainly focus on building local know-how, infrastructure and prototypes of mycelium biocomposites by utilising locally available low-cost biomass and enhancing material qualities through genetic engineering and mechanical interventions.

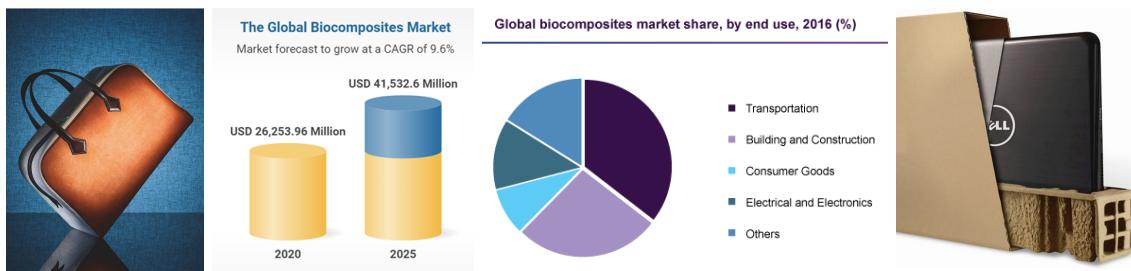
The intended outcomes of this project are :

- Build know-how and prototypes of mycelium biocomposites
- Build infrastructure to conduct fungi culturing, DNA barcoding and next-generation sequencing
- Barcode novel Sri Lankan fungi species capable of turning straws, sugar cane, grass into biocomposites
- Modify fungi species to enhance the growth rate and ability to grow on less nutrient biomass
- Enhance strength and less-moisture absorbance through control processing techniques
- Develop biological & biosafety manufacturing processes
- Develop infrastructure for controlled processing techniques to customise material properties
- Explore the local market potential and conduct pilot projects with potential partners

Global Market Potential

Multinational corporates from transportation, building, consumer goods, fashion and electronics industries are starting to adopt biomaterials for their products, thereby pushing the global biocomposites market to reach 40 Billion USD in 2025.

Hermès partnered with MycoWorks to use a leather alternative grown from mycelium. Dell made mycelium biocomposite with bamboo, and now it's been used to ship servers to customers.



Hermès - MycoWorks [3] | Market Forecast [6] | Market Share [7] | Dell [8]

Interested Local Partners

Ananta Sustainables Sri Lanka [4] sources and supplies sustainable packaging for businesses, striving to make sustainable packaging a viable option for businesses through education and awareness. Ananta is interested in DreamFungi project so that their mission to transition companies to use compostable packaging can be achieved with local innovations.

Nestlé Lanka [5] awarded this project idea with a cash prize of 100,000 LKR at the Open Innovation challenge conducted in Sri Lanka to attract green initiatives to drive sustainability in food packaging and recycling solutions across Nestlé products. The juries are further interested in the prototype of DreamFungi project to evaluate the potential of this new material in Sri Lanka.

Give & Receive

Impact investment of **20,000 EUR** is needed to build the infrastructure (Laminar Flow Hood, Autoclave, Incubator, Centrifuge, Electrophoresis, PCR Thermocycler, Nanopore Sequencer, Spectrophotometer, Microscope, Glassware, Fungi Cultivation Container, etc.) and source biochemical materials.

When this project leads to a for-profit startup, impact investors reserve the right to receive equity with a discount at the first financing round.

DreamSpace Academy is a non-profit social enterprise with a transparent balance between social mission and business venture. More info about how you can support us and give your financial or material contributions can be found at <http://support.dreamspace.academy>

Mentors

- Alessandro Volpato - Mycology | Evolutionary Biology, TopLab, Germany
- Malte Larsen - Mycology, mikroBIOMIK, Germany
- Nicholas Crudele - Fermentation | Synthetic Biology, Driftwood Brewery, Canada
- Dr. Ellen Jorgensen - Molecular Biology | Bioethics, Biotech Without Borders, USA
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- Dr. Rachel Aronoff - Genetics | Biotechnology, Hackuarium, Switzerland
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- Dr. Johanna Havemann - Molecular Biology | Open Science, Access 2 Perspective, Germany
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- Kathrin Hadasch - Bioinformatics, Technical University of Darmstadt, Germany

Team

- Cris Silva, Biologist | Guardian of Bio Lab, DreamSpace Academy
- Aravindh Panch, Global Bio Fellow | Co-Founder, DreamSpace Academy
- Jayanthan Amalanathan, Grassroots Innovator | TrashForTrade, DreamSpace Academy

References

- [1] <https://ecovativedesign.com>
- [2] <https://corpuscoli.com>
- [3] <https://mycoworks.com>
- [4] <https://anantasustainables.com>
- [5] <https://www.nestle.lk/innovation/innovation-news/open-innovation>
- [6] <https://www.researchandmarkets.com/reports/4989807/biocomposites-market-research-report-by-material>
- [7] <https://www.grandviewresearch.com/industry-analysis/biocomposites-market>
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