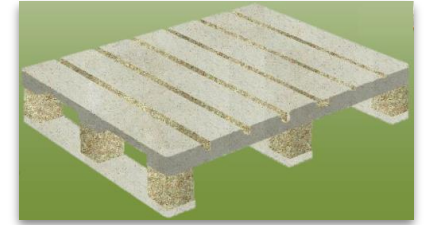


Composite biomaterial to produce

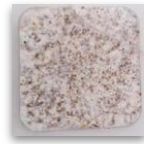
pallets

Innovative, light, with high mechanical resistance, resistant to fire and water, and with excellent acoustic and thermic properties, for different applications, in particular to produce pallets. The material is constituted by grape stalk, mycelium (fungus) and a substrate formed by seeds, cereals or wood.



The Problem

90% of the existing pallets are made of wood (FEFPEB, 2016), followed by plastic with 4%. However, plastic pallets are not a sustainable solution and **wood pallets present a series of problems**. In particular, their raw material is becoming scarcer and it associated with environmental problems, the pallets are heavy, cannot be sanitized, and are not water-proof. Besides, alternatives to plastic or other compounds dependent on fossil fuels are increasingly being sought for use in the most diverse industries.



Our Solution

The new composite material developed by researchers of the Centre of Biotechnology and Fine Chemistry results from the aggregation of by-products from the agri-food industries through the action of selected fungi. Therefore, it is a highly environmentally friendly technology. The mycelium (fungus) intertwines the grape stalk, creating a network that turns into a compact matrix with the proliferation of the fungus. The production process also includes adding a substrate formed by seeds, cereals or wood consumed by the fungus.

Performance Results

- Permeability test: when submerged in water, the weight difference is lower than 0.1%.
- Density: The density of the composite material varies between 0.20-0.22 g/cm³
- Compressive strength: 47-53 N/mm²
- Flexural strength: 5.5- 6.9 N/mm²
- Flammability (standard test for UL94 flammability): material does not show ignition



BENEFITS

- ✓ **Waterproof;**
- ✓ **Non-flammable;**
- ✓ **Light;**
- ✓ **Mechanically resistant;**
- ✓ **Durable;**
- ✓ **Competitive price;**
- ✓ **Environmentally friendly,** as it is **biodegradable** and promotes the **circular economy;**



MARKET OPPORTUNITY

This technology can be applied to **different industries**, namely for pallets' production for the logistics industry.



DEVELOPMENT PHASE

Samples of the products **have been produced and tested**. A business plan has also been developed.



INTELECTUAL PROPERTY STATUS

Pending European Patent.

AVAILABLE FOR

- ✓ Development/scale-up collaboration;
- ✓ Technology transfer.

Contacts

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