ORGANIC MUSHROOM AND VEGETABLE PRODUCTION BY BIOCONVERSION PROCESS

Monpellets LLC co-creation team

Description of the project

Biological approaches based on industrial and environmental biotechnology are focusing on the development of "clean technologies" which emphasizes maximum production, reduced waste generation, treatment, and conversion of waste in some useful form. In that reason, our mission is to bio-convert unused organic residues that produced by agricultural, animal husbandry and forestry activities in Mongolia to useful bio-production as edible and medicinal mushroom, organic vegetables, and eco & organic fertilizers.

Project impact

With the co-creation project implemented, to create possibilities provide the population with healthy, safe, pure ecologically and organic foods as well as providing 100 percent organic fertilizer, mushroom mycelium and vegetable seeds that based on scientific and innovative approaches to cultivars. This is matched with several sustainable development goals.

Structure of the co-creation project

Our co-creation project will be divided into 3 main steps due to duration of the project implementation and equity involvement of team composition. In that reason, 1st step of the co-creation project is 'Develop edible mushroom cultivation technology by using 100 percent organic fertilizer from sheep wool' which will be implemented during the 4 months.

- 1st step of the co-creation project name: Develop edible mushroom cultivation technology by using 100 percent organic fertilizer from sheep wool.
- 2nd step of the co-creation project name: Product organic fertilizer by spent mushroom substrate and eco-compost.
- 3rd step of the co-creation project name: Organic vegetable cultivation using newly developed eco & organic fertilizer.

4.Team composition of co-creation project				
	Name of the organization	team member's name	Role in the project	Project participation period
1	Monpellets LLC	Sh.Delgermaa	Head of the team	Whole duration
2	ULS, Mushroom research and development center	A.Tsolmon	Researcher	Whole duration
		Kh.Dulamsuren	Researcher	Whole duration
		T.Ichinkhorloo	Researcher	Whole duration
3	MULS, Darkhan Uul School Eco compost	B.Enkhtuya	Researcher	Whole duration
		B.Bilguudei	Researcher	Whole duration
4	Erkh Bileg Khan Association NGO	B.Myagmarsuren	Coordinator	Whole duration
		Ch.Otgonbayar	Coordinator	Whole duration

Edible mushrooms M5 strains brown oyster (*Pleurotus ostreatus*) and elm oyster (*Hypsizygus ulmarius*) were selected for the investigation.

No	Substrate version	Ratio
1	100 percent organic fertilizer from sheep wool	Control
2	Birch saw dust + sheep wool pellets	70:30
3	Elm saw dust + sheep wool pellets	70:30
4	Pine saw dust + sheep wool pellets	70: 30
5	Straw + sheep wool pellets	70:30

No	Substrate version	Ratio
1	100 percent organic fertilizer from sheep wool	Control
2	Birch saw dust + sheep wool pellets	90:10
3	Elm saw dust + sheep wool pellets	90:10
4	Pine saw dust + sheep wool pellets	90:10
5	Straw + sheep wool pellets	90:10

Result of edible mushroom cultivation using 100 percent organic sheep wool fertilizer
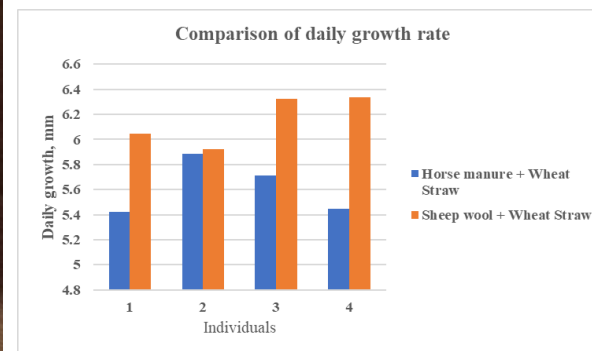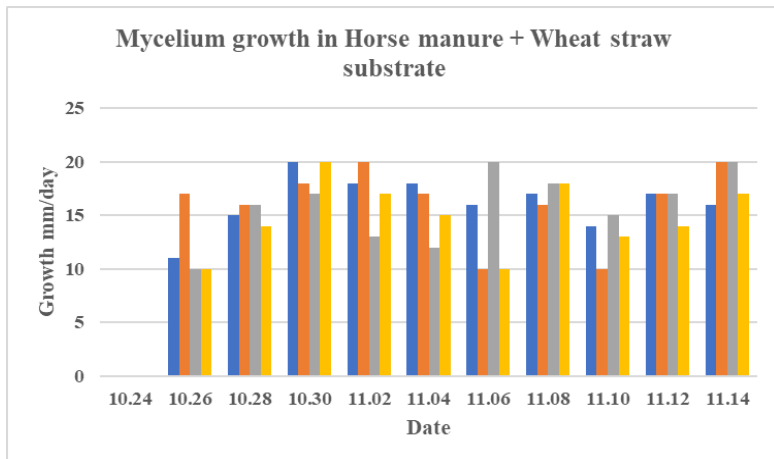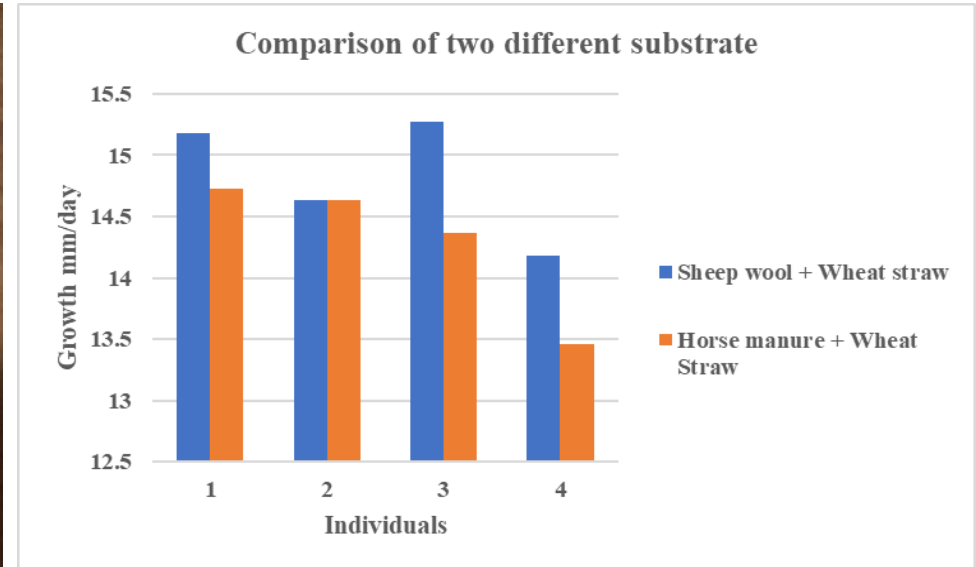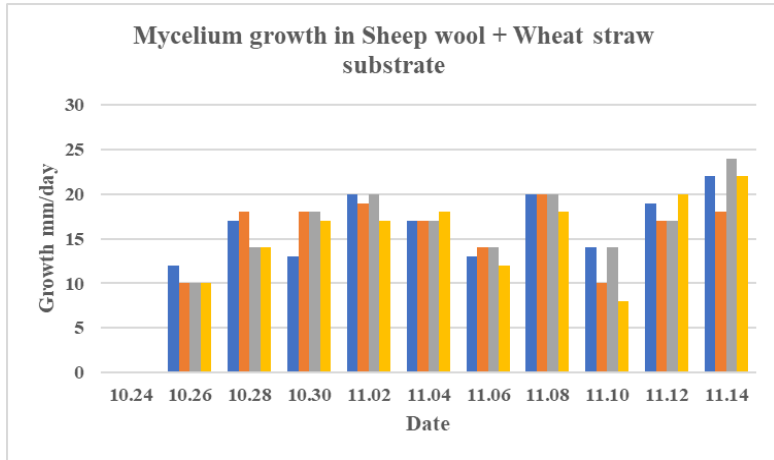
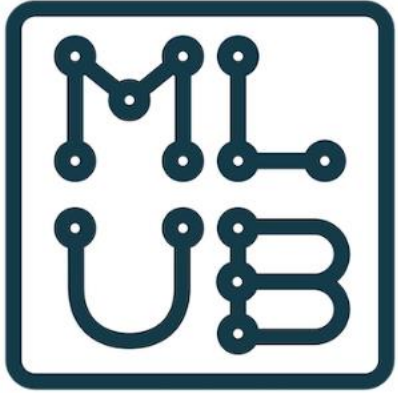# Result of decorative flower as Tulip cultivation using eco-compost

We evaluate the effectiveness of machine learning for mushroom growth monitoring for the genus Pleurotus together with Machine Learning UB. Along with other technologies, machine learning is highly used in tasks such as yield prediction, disease detection, weed recognition, and fruit recognition.

Plan for the rest of the project period

- Calculate bio-efficiency of cultivated mushrooms

- Laboratory analyze of cultivated mushrooms

- Laboratory analyze of eco-compost

- Laboratory analyze of 100 percent organic sheep wool fertilizer

Further funding on above mentioned activities is 30000000 ₮