

Potato waste (PW) biomass utilization as a biostimulant/biofertilizer for plant growth.

Screening study from NIBIO

- PW can be valorised as biostimulant or biofertilizer to improve root health and plant growth (*Lactuca sativa*).
- PW can be used as a substrate for fungi growth, and this finding opens a new pathway for using PW to produce a large quantity of fungal biomass (*Trichoderma* spp) via fermentation.
- *Trichoderma*-enriched media can be used as a foliar spray and the residual solid biomass represents a low-cost soil-amendment with a large amount of *Trichoderma* inoculum.
- Further studies are required to quantify the amount of *Trichoderma* present in PW biostimulant as well as the secondary metabolites responsible for plant growth promotion, root elongation, and protection against disease. This will allow us to scale up the process as a novel product by utilizing potato waste from the industry.

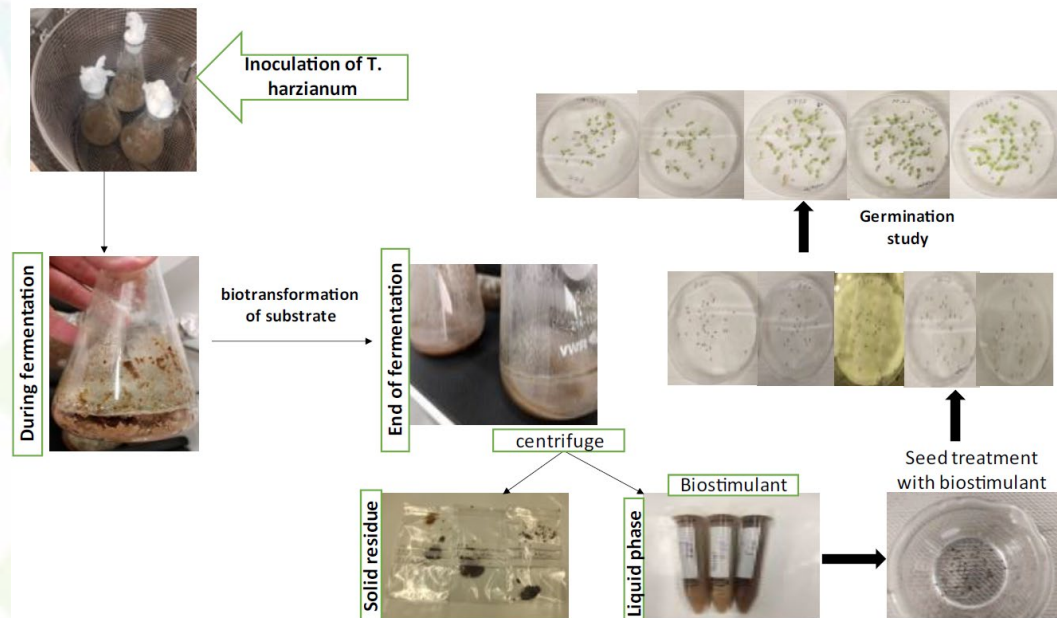




Figure 1: A schematic flow of potato waste biostimulant production and seed germination study



Key partners, activities and resources	Value propositions	Customer segments and product selling channels
<ul style="list-style-type: none"> - Use PW to produce a large quantity of fungal biomass (<i>Trichoderma</i> spp) via fermentation. - <i>Trichoderma</i>-enriched media can be used as a foliar spray and the residual solid biomass represents a low-cost soil-amendment with a large amount of <i>Trichoderma</i> inoculum. - PW-based biostimulant improved the root elongation and seed vigour index (SVI) in a dose-dependent manner. - Fermentation technique. 	<ul style="list-style-type: none"> - PW as biostimulant or biofertilizer to improve root health and plant growth (<i>Lactuca sativa</i>). - Produce a large quantity of fungal biomass (<i>Trichoderma</i> spp) via fermentation 	<ul style="list-style-type: none"> - Soil improvement - Fungi growing

Cost structure 

- This approach is a completely sustainable and economically viable method of converting waste into valorization for agriculture
- *Trichoderma*-enriched media can be used as a foliar spray and the residual solid biomass represents a low-cost soil-amendment with a large amount of *Trichoderma* inoculum.

Revenue streams 

- Soil improvement agents
- Fungi culture agents

Challenges 

Further studies are required to quantify the amount of *Trichoderma* present in PW biostimulant as well as the secondary metabolites responsible for plant growth promotion, root elongation, and protection against disease. This will allow us to scale up the process as a novel product by utilizing potato waste from the industry.