

Innovative modular composter to transform organic waste into reusable resources through a very fast process. Partners sought are companies producing organic fertilizers for commercial agreement with tech assistance and investors

## Summary

Profile type	Company's country	POD reference
<b>Technology offer</b>	<b>Italy</b>	<b>TOIT20230418014</b>
Profile status	Type of partnership	Targeted countries
<b>PUBLISHED</b>	<b>Commercial agreement with technical assistance</b> <b>Investment agreement</b>	<b>• World</b>
Contact Person	Term of validity	Last update
<a href="#">Rita Elste - Tomsone</a>	<b>18 Apr 2023</b> <b>17 Apr 2024</b>	<b>18 Apr 2023</b>

## General Information

### Short summary

An Italian SME, operating in the treatment and disposal of non-hazardous waste, is looking for partnership's agreements with companies in the sector of fertilizers, biogas, biodiesel, bioethanol to further develop its prototyped small and modular fermenter.

The cooperation sought is a commercial agreement with technical assistance; also open to investors.

### Full description

The SME from NorthWest of Italy has developed a process to use the urban and extra-urban organic waste as a resource, transforming it through a fast demolition (in about only 3 days, instead of months with the current technologies) into reusable products such as highly organic compost, free of heavy metals.

Waste in modern societies is a problem: the main concern is limited to its disposal and only in few cases recycling is considered, so the undifferentiated accumulates in landfills or is incinerated. The economic and social costs for such a treatment of waste are evident to all of us.

The incineration process releases carcinogenic nano-particles, landfills causes infiltration in the soil and groundwater contamination; the environmental spoiling leads to difficult reconciliation with the life of local residents.

Composting facilities do not achieve a recycling compatible with the environment: the organic is left to ripen for about

six months, and after stabilization is sold as a soil improver. The product, however, is always composed in large percentage of harmful products such as heavy metal, plastic or glass.

The production of ethanol, in most cases with few exceptions, is carried out using materials derived from the use of food (maize, rice, sugar cane, etc...): in some parts of the world such a practice has considerably decreased cultivated land for food in favor of crops for energy use.

The new concept of circular economy considers waste as resource, through recycling and reuse: the company intends to use the urban and extra-urban organic waste as a resource to obtain through a very fast demolition (about 3 days) reusable products such as:

- highly organic compost which free of heavy metals (cadmium, copper, zinc, etc. ...) and modulated in the title (percentage of nitrogen, phosphorus and potassium);
- bio-plastics;
- ethanol;
- other utilities (in course of testing and validation).

The company has designed and developed a small fermenter device that is modifiable: the smallest element measures 1 m x 1 m and is easily transportable by trolley: more modules can be added for higher dimensional needs.

The device uses selected bacteria for aerobic fast demolition of organic waste directly from the producer: it can produce about 12,000 kg of compost tea per year.

This compost tea is immediately usable in agriculture but it can also be used by companies producing fertilizers as a low cost basic material, for the production of natural product to address the organic agriculture farming sector.

The company is looking for a partner that could be:

1. a fertilizer producer who can buy the compost tea resulting from the process, to produce natural fertilizers that can be used especially in organic farming. Fertilizer producers could have at their disposal a low cost material for their productions. The company can provide biological analysis of the product for evaluation and is available to collaborate for the realization of the final commercial product.
2. a final user interested to locate the machine in its premises, for the collection of its own organic waste (canteen, restaurant, companies etc...), contributing to the testing and final design.
3. an investor willing to participate in the development and launch of the device.

The business model is currently based on the sale of the compost tea resulting from the waste demolition, to produce natural fertilizers; moreover, the SME is studying further developments with the aim to extract from the demolitions' result additional utilities (i.e. bioethanol, biodiesel, Hydrogen); the resulting digested material is rich in sugar components that could be used in the production of bioethanol and an oleic part that could be used to produce biodiesel. Research activity is still ongoing to explore these further applications.

The prototype is a parallelepiped measuring 1 m by 1 m and 2 m high.

The composter can be operated remotely through a smartphone. Operates with 220 V electric energy.

### Advantages and innovations

Principals features of the prototype against current technologies

1. The SME has realised a prototype that can demolish the waste quickly, in about 3-4 days (while with the current technologies it takes about 6 months);
2. The machine works continuously, so it is not necessary to wait until the organic waste injected is demolished to add more;
3. It is modular (minimum system of one 1x1 meter, up to the maximum discretion);
4. It favors community or condominium composting (it can be placed in basements, canteen areas or areas of municipality);
5. It doesn't produce excessive smells;
6. Demolition's result can be modular (other components can be added during the process to transform it into valuable fertilizer)
7. The composter can be operated remotely through a smartphone, monitoring and managing temperature and PH

### Technical specification or expertise sought

#### Stage of development

**Available for demonstration**

#### IPR Status

**IPR granted**

#### Sustainable Development goals

- **Goal 12: Responsible Consumption and Production**
- **Goal 15: Life on Land**

## Partner Sought

### Expected role of the partner

Possible partner:

1. a fertilizer producer who can buy the compost tea resulting from the process, to produce natural fertilizers that can be used especially in organic farming.
2. a final user interested to locate the machine in its premises, for the collection of its own organic waste (canteen, restaurant, companies etc..), contributing to the testing and final design.
3. an investor willing to participate in the development and launch of the device.

### Type of partnership

### Type and size of the partner

**Commercial agreement with technical assistance**

**Investment agreement**

- Other
- SME 50 - 249
- SME 11-49
- SME <=10

## Dissemination

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Technology keywords

- **10003001 - Biotreatment / Compost / Bioconversion**
- **10003004 - Recycling, Recovery**

Targeted countries

- **World**

Market keywords

- **08004004 - Other pollution and recycling related**

Sector groups involved

- **Agri-Food**