INSTITUT DE RECHERCHE
ET DE DÉVELOPPEMENT
EN AGROENVIRONNEMENT

THE BIO-RHO$_2$ PROCESS

Liquid manure bio-treatment to produce efficient and eco-friendly fertilizer.

The aerobic treatment of pig slurry with the two-step Bio-RhO$_2$ process produces a liquid phase rich in nitrogen and a high dry matter phase enriched in phosphorus.

Highlights

- Full-scale prototype treating 500 liters of slurry per day was developed using the following parameters:
  - Three days residence time in the activation basin;
  - Nine days residence time in the bioreactor.

- Very promising results:
  - Decrease of the organic load (BOD_5);
  - Major reduction of unpleasant odour;
  - Significant reduction of greenhouse gas emissions;
  - Elimination of E. coli bacteria.

Activation basin

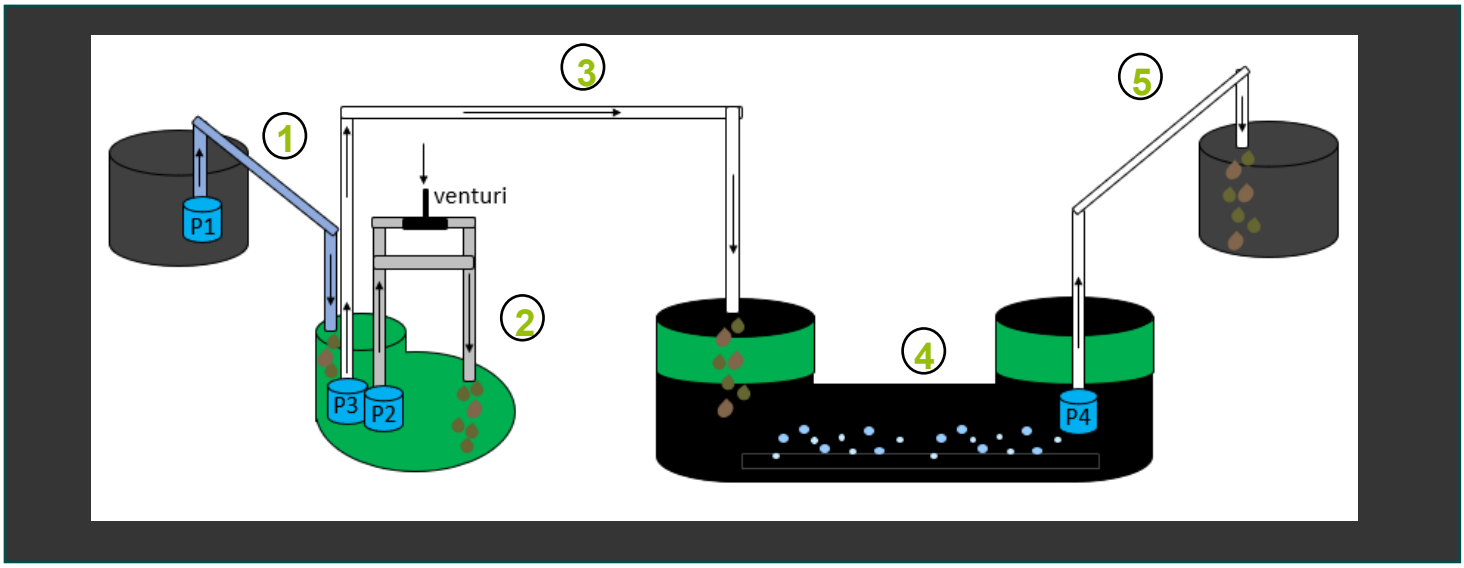
- 2.2 m^3 tank.
- Sequential aeration of slurry every hour using a venturi system.
- 3 days residence time.

Step 1

Once a day, 500 L of slurry are pumped from the pig building pre-pit to the activation basin (P1).

Step 2

Every hour, all the slurry is recirculated through the Venturi system (P2), injecting air into the slurry for 10 minutes.



Bioreactor

- 900 mm diameter and 7 m long pipe (capacity of 4.5 m^3).
- Bubble tubing® of ½'' with continuous aeration.

Step 3

Once a day, 500 L of slurry are pumped from the activation basin to the bioreactor (P3).

Step 4

In the bioreactor, a low airflow is supplied continuously with the Bubble tubing®.

Step 5

Once a day, 500 L of treated slurry are pumped from the bioreactor to a decantation tank (P4).

Partners

PARTENARIAT CANADIEN pour l'AGRICULTURE

Canada Québec

Fertilisation FertiRoy inc.

SOLENO
La maîtrise de l'eau pluviale

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