



**KYOWA**  
共和化工株式会社

# KYOWA KAKO CO., LTD.

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## Composting



## Fertilizer (Final product)



## Agriculture



Rice field



Vegetables



Fruits



Japanese sake

## Organic wastes

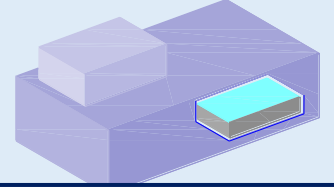


Sewage sludge



Food wastes

## Wastewater treatment



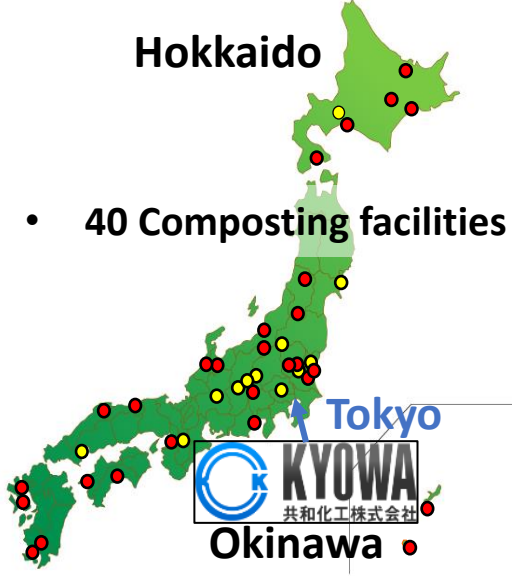
Wastewater treatment plant




YM reactor

### Hokkaido

- 40 Composting facilities



Tokyo



Okinawa



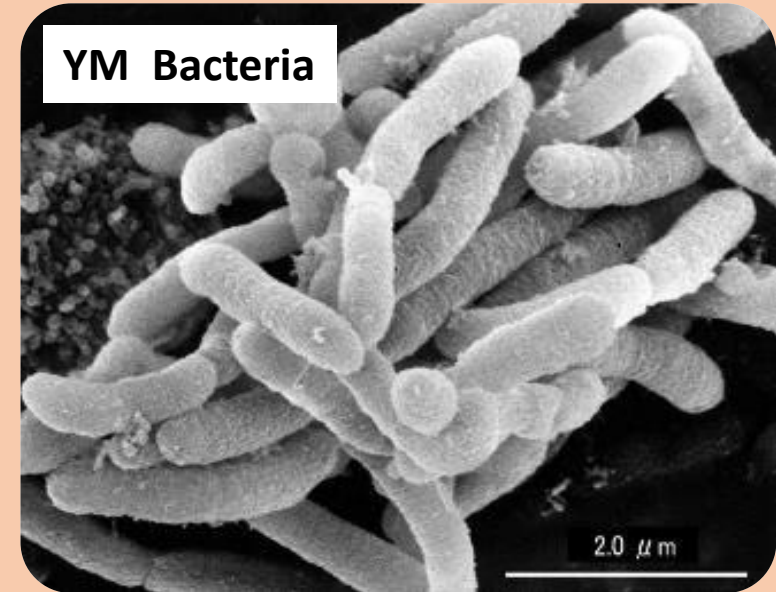
Japanese Restaurant



Groceries

## ② YM Bacteria Hyperthermophilic Composting Technology

- **Patented microorganisms** (identification of 15 or more bacteria) Deposited at National Institute of Technology and Evaluation, Biological Resource Center, Japan.
- Since the fermentation temperature is as high as 100 ° C, the ability to **decompose organic matter** is high, and fermentation can be performed in a short period of time (about **45 days**).
- Since the **mixing ratio** of composting activator can be changed according to the properties of the raw material (more or less of moisture), secondary materials such as chaffs are unnecessary.
- Because there are few devices, **CO<sub>2</sub> emissions can be reduced**. (87% CO<sub>2</sub> reduction compared with incineration).
- There are **40 composting facilities** throughout the country.
- **Low moisture content and hygienic compost** can be produced.



# ③ Implementation of Hyperthermophilic Composting System in Japan



## Composting facility in Western Japan



- For Biodegradables Treatment in large Scale (20 ton/day to 100ton/day).
- Odor emission control such as biological and/or chemical deodorization system for fermentation building.
- Use of Wheel Loaders (Komatsu WA200) are needed for mixture and turn over.
- Several Compartments for Fermentation using Air Blow.

### Deposition of organic wastes and mixing



- Mixing biomass and compost activator with wheel loader.

### Composting process (about 45 days)



- Turn over the mixture
- Aeration of the compost pile

**Fertilizer  
(Final product)**

### Use as a fertilizer by local farmers



Asparagus

Rice

# ④ Closed Stirring Type Composting Device (YM Himawarikun)

Fermenter that inherits the ability of the facility sized scale



Significant reduction in operation costs !

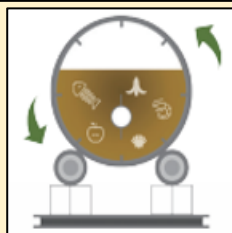
## Other devices



(stirred by blades)

- Easy to break
- High electricity demand
- Heterogeneous mixture
- Frequent maintenance

## YM Himawarikun



(outer cylinder rotates and stirs)

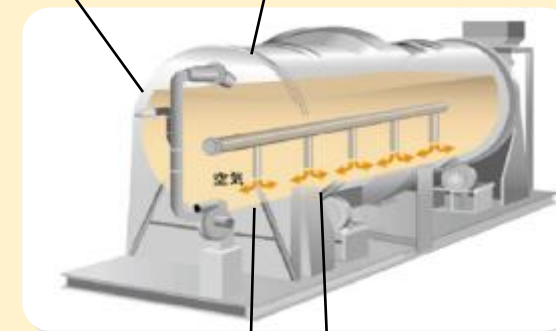
- Very resistant
- Low electricity demand
- Homogeneous mixture
- Few maintenance
- Maintain high temperature

- ✓ Use of proven fertilizer technology
  - ◆ Safe fertilizer by hyperthermophilic fermentation
  - ◆ Environmentally friendly, reduce CO<sub>2</sub> emissions
  - ◆ Reduce odor by aerobic fermentation

## ✓ Equipment features

② Operate as it is in one-piece installation

① Simple structure



④ Treat. capacity of 200 to 2,000 kg / day

③ Easy to deodorize due to sealed structure



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Thank you very much!

ご清聴ありがとうございました！