

# BIOMASS MICROWAVE CARBONIZER (BMC)

PATENT NO. PI 2013003117



**BMC-10 Prototype**



**BMC-250 Pilot Plant**

## INTRODUCTION

Bio-charcoal or known as "biochar" is high in demand nowadays. However, there are only a few companies that produce biochar. Malaysia's biochar production are still limited with conventional technology. Traditional or conventional biochar-making technologies are energy inefficient, highly polluting and also time consuming.

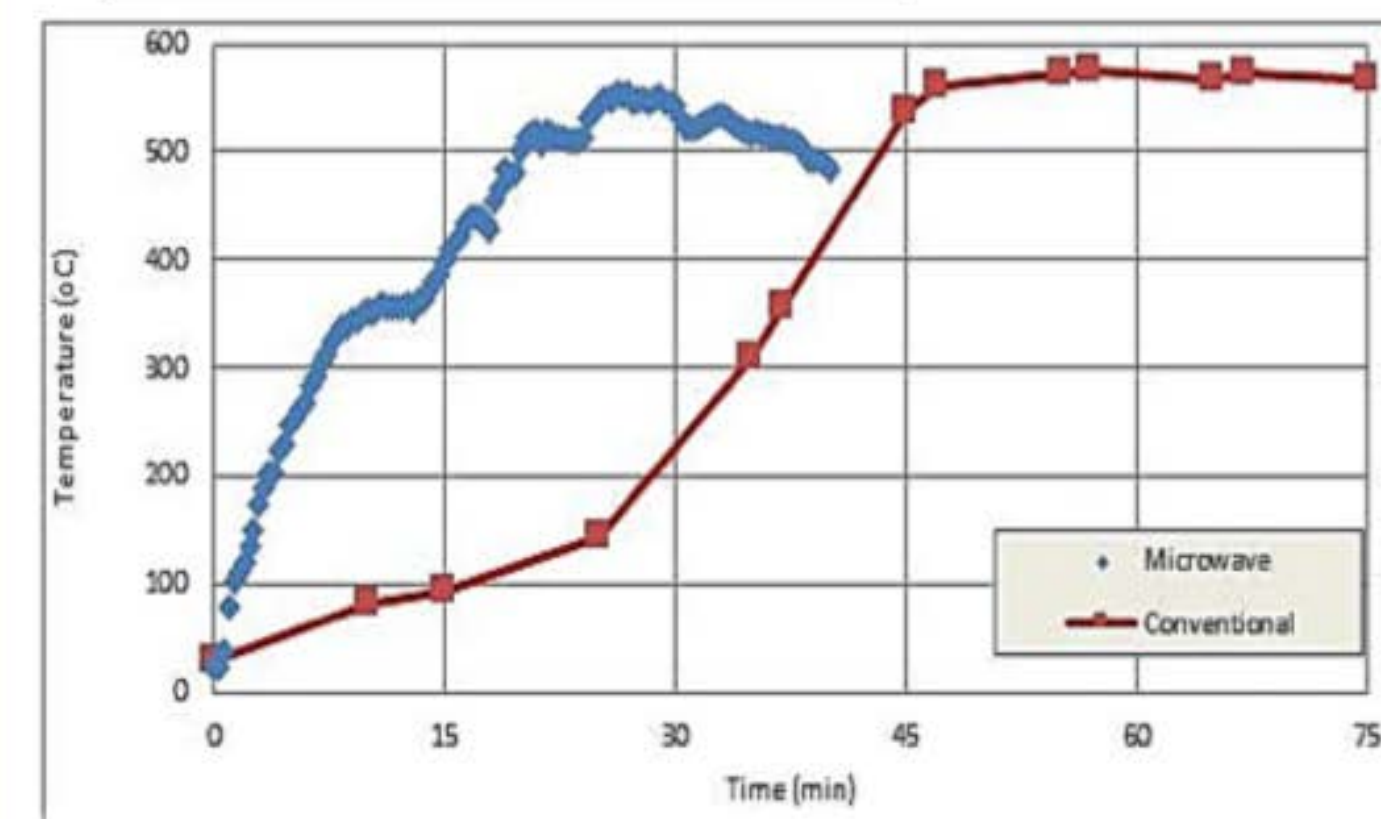
## INVENTION

- Biomass Microwave Carbonizer (BMC) adopts innovative clean technology using microwave energy to burn biomass wastes and agricultural wastes into high grade of biochar.
- It is highly efficient and environmental friendly system which gives innovative way of handling variety of biomass wastes include fuel wood, forestry wastes, crop residues, landscape residues, domestic wastes and animal wastes.

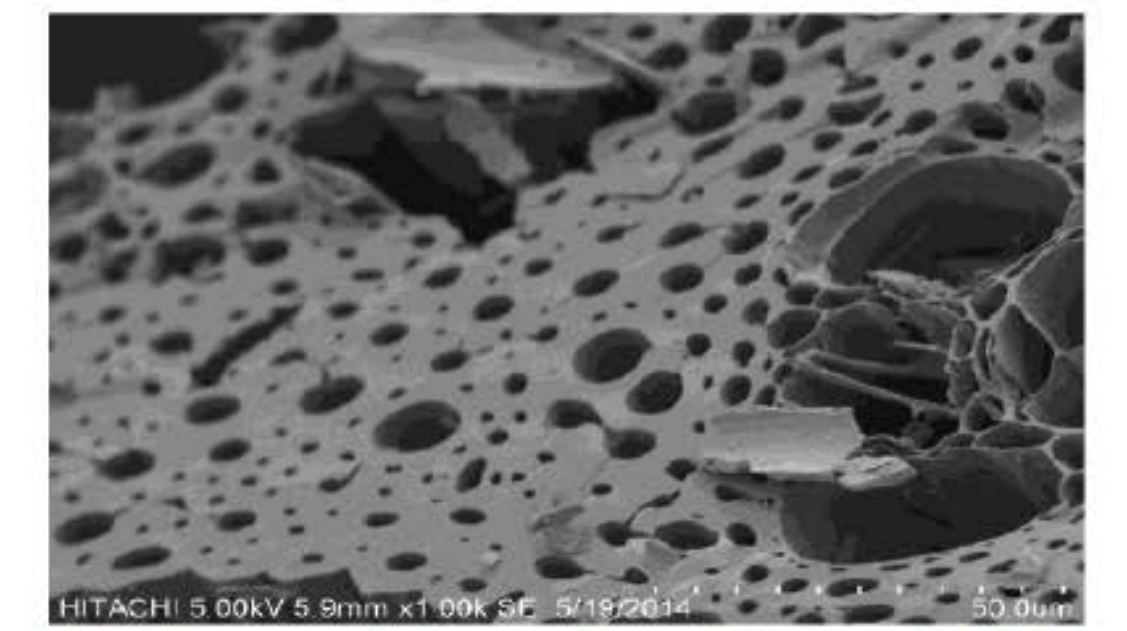
## ADVANTAGES

- Give 5 times faster and efficient burning process than the composting or incineration method.
- Give 20% higher production capacity of biochar product.
- Save 58% of energy consumption than diesel.
- 51% more energy efficient than the conventional system.
- A cleaner production process with 70% less carbon emissions.
- Produce high biochar quality compared to the biochar produced from conventional method.
- Compactness and portable system of BMC system (30% - 50% smaller from conventional system) is easily be accommodated.

Our EFB Biochar Specification	Value
Gross Calorific Value (CV)	6,318 kcal/kg
Fixed Carbon content	32 %
Volatile matter	51 %
Moisture	8 %
Ash content	9 %



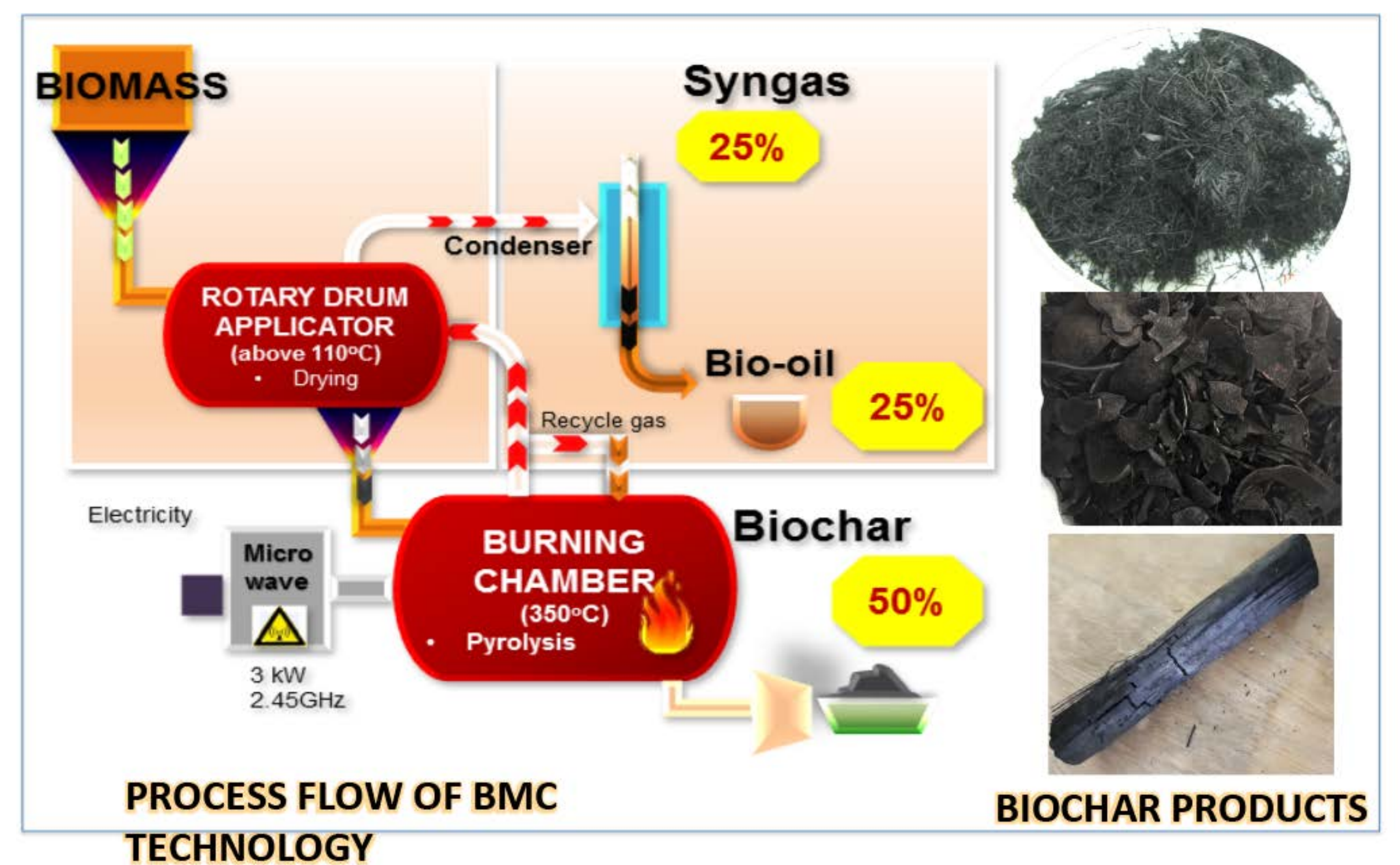
**Comparison of temperature rise between Conventional & Microwave Pyrolysis**



**High porosity under SEM analysis**



**Adsorptive capability of biochar**



**BIOCHAR PRODUCTS**

## MARKET POTENTIAL

1. BMC system is suitable for B2B market:
  - Biomass or agro waste generators
  - Power generators
2. Biochar is suitable for B2B and B2C market:
  - Green fuel for industrial and domestic heating.
  - Soil enrichment and remediation for farming and agricultural use.
  - Raw material for activated carbon production.

## Consumer/End User

- Charcoal traders, hotels, caterer, restaurants and food outlets, hypermarkets and retailers.
- Farmers and fertilizer manufacturers.

## Industry

- Coal or EFB power plants, coal traders, and boilers.
- Food service industry
- Activated carbon producers



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