



www.vrindia.co.in

.....

BIO CHAR

Miracle of Natural carbon



VR INTERNATIONAL Bhopal on September 20

Biochar by VR INTERNATIONAL is a pyrogenous, organic material synthesized through pyrolysis of 100% bamboo biomass.

.....

VR INTERNATIONAL

Organic Farming Solution

Kh No. 36/2 Hoshangabad Rd, Near 11 Mile,
Indus Towne, Ratanpur Sadak, Bhopal,
Madhya Pradesh 462047

<https://www.vrindia.co.in/biochar>

info@vrindia.co.in



What is Biochar

Biochar is a fine-grained, carbon-rich, porous product remaining after plant biomass has been subjected to a thermo-chemical conversion process (pyrolysis) at low temperatures (~350–600°C) in an environment with little or no oxygen. Biochar is not a pure carbon, but rather a mix of carbon (C), hydrogen (H), oxygen (O), nitrogen (N), sulphur (S) and ash in different proportions.

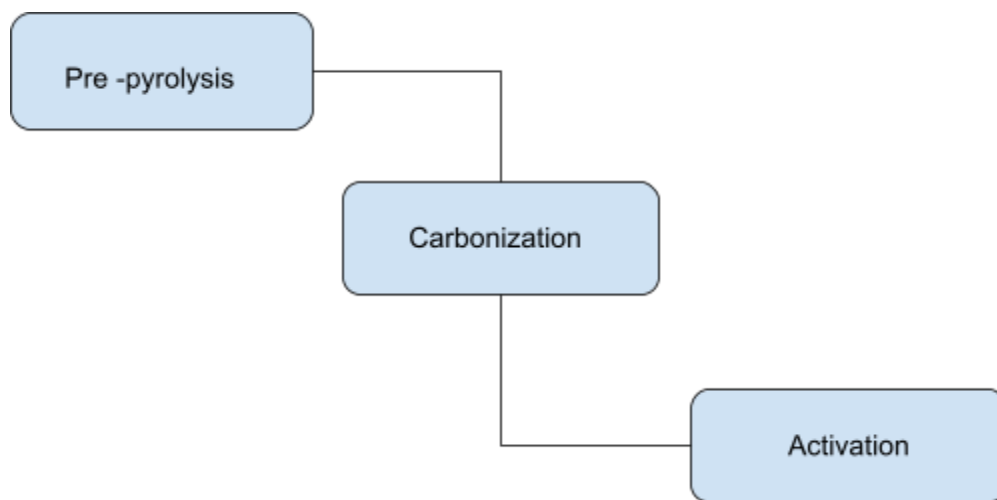
The most pronounced chemical difference between biochar and other organic matter is the higher proportion of aromatic C and condensed aromatic structures, in contrast to other aromatic structures of soil organic matter, such as lignin. Biochar exhibits high biodegradability, high contents of total and organic carbon, as well as optimal concentrations of micro- and macroelements (potassium, sodium, magnesium, calcium, copper, zinc, iron etc.). It is generally characterized by a high specific surface area, high content of surface functional groups, pH and porosity.

bamboo charcoal has been used in various ways due to its tremendous extraordinary properties. What makes this charcoal so amazing is the carbonization process which creates a product with an enormous surface area to mass ratio which has a high ability to attract and hold (adsorption) a wide range of materials, chemicals, minerals, radio waves, humidity, odours and harmful substances.

How we produce

Biochar is created through the pyrolysis of biomass. As biomass we use 100% bamboo pallets. The selection of bamboo for producing a char for the desired properties. Raw material comes from pieces of bamboo plants, harvested after at least five years, and burned in ovens at temperatures ranging from 200 to 1200 °C. It benefits environmental protection by reducing pollutant residue. It is an environmentally functional material featuring excellent absorption properties.

Our Process of biochar production had three stages: pre pyrolysis;main-pyrolysis and formation of carbonaceous activated products.



Bamboo is cut into small pieces and washed by water for some hours and dried at a temperature nearly 110 °C to remove moisture . Then, the **carbonization** process is held in the oven normally at N₂ flow at temperatures over 500-1200 °C at longer period hours. . The fresh bamboo charcoal produced from this process is the raw bamboo charcoal.

Activation of carbonized bamboo charcoal is important to improve the original structure and increase the adsorption properties. It is mixed with CO₂ , HNO₃ , NH₃ and many more before it is heated again at a certain temperature for some periods. The annealed bamboo charcoal cooled to a temperature between 170 to 240 °C before it serves as activated Biochar.

For Sustainable Farming

Biochar-treated soil shows higher capacity of the soil to store water, aeration of the soil and the release of nutrients through raising the soil's pH-value. Biochar is a stable, carbon-rich form of charcoal that is applied to soil.

- Biochars can increase soil fertility, water holding capacity and crop productivity.
- Adding biochar to soil increases its carbon content and could help mitigate greenhouse gas emissions.
- Research shows that biochars derived from grasses or crops appear to have the best balance of agricultural benefit and carbon stability.
- Biochars derived from grass, wood, and biosolids have been shown to raise wheat germination rates by about five per cent.
- Improved nutrient storage and/or availability
- Improved soil structure
- Improved water holding capacity
- Increased abundance of mycorrhizal fungi, assisting nutrient uptake by plants.

Carrier material for Biofertilizer

Biochar is one of the best carrier media for various biofertilizer strains. It has been found that coals supported the growth and survival of inoculant strains. Most contained more than 10^7 rhizobia per g after 12 months. Biochar is ideal carrier media because

- non-toxic to inoculant bacterial strain.
- good moisture absorption capacity.
- easy to process and free of lump-forming materials.
- easy to sterilize by autoclaving or gamma-irradiation
- available in adequate amounts and fairly inexpensive
- good adhesion to seeds, and good pH buffering capacity. Needless to say non-toxic to plant.

Biochar in animal farming

At present approx. 90% of the biochar used in Europe goes into animal farming. Used as a feed supplement, the incidence of diarrhoea rapidly decreases, feed intake is improved, allergies disappear, and the animals become calmer.

Being used as feed additives, charcoal reduces gastrointestinal neurotoxin burden. It found that when the feed supplements were ended, antibody levels increased, indicating that regular feeding of charcoal and other supplements had a tonic effect on cow health.

Aquaponics

Water quality is very important in aquaponics. And more important is a sustainable way of water filtration. Biochar is now becoming a perfect absorbent based filter media in modern fish farming and Aquaponics Industry. Bio filtration of the water with biochar Allows used to maintain DO, COD and other water parameters under control.

Cosmetics

Biochar powder has a detoxifying effect for the skin. The active ingredient also stimulates cell growth. Biochar is considered as sustainable raw material for many Natural and herbal based cosmetic formulations. It serves as base for product like facemask, soap, cream and lot more

- Adsorbs impurities due to its super-porous structure and has millions of pores to trap and store pollutants, impurities and other harmful substances so they can be washed away
- naturally deep cleans and gently exfoliates to remove dead skin cells without drying skin
- Can help ease acne; depending on the severity and type of acne, activated charcoal may offer some relief
- Antibacterial, antimicrobial, antiviral and antifungal properties making it a great choice for acne-prone skin

- when used in a face mask activated charcoal helps remove the oil and dirt from pores that make them appear larger--so pores will appear smaller.

Category of our products

Category	Carbon value	Iodine value	pH	Particle size	Gasification time and Temperature	Moisture content	Ash content
Agri-Biochar	65-75 %	500 - 600	8 to 10	powder form	2 to 3 hours, 400-500 degree C	> 5 %	> 5 %
Carrier -Filter	65 - 75 %	500 - 600	8 to 10	powder form	2 to 3 hours, 400-500 degree C	> 5 %	> 5 %
Cosmetics-biochar	>85%	>820	8 to 10	powder form	3 to 4 hours, 800-900 degree C	> 5 %	> 5 %
Desiccant-biochar	75-85%	>800	8 to 10	Granular/powder form	3 to 4 hours, 800-900 degree C	> 5 %	> 5 %
Feed-biochar	65 -75%	500 - 600	8 to 10	Granular / powdered form	2 to 3 hours, 400 - 500 degree C	> 5 %	> 5 %

Category	Packing	MOQ	Unit price
Agri-Biochar	30 kg	500 kg	75/kg
Carrier/Filter	30 kg	500 kg	85/kg
Cosmetics-biochar	30 kg	100 kg	200/kg
Desiccant-biochar	30 kg	30 kg	200/g
Feed-biochar	30 kg	100 kg	80/kg

Contact Us

VR INTERNATIONAL

Organic Farming Solution

Kh No. 36/2 Hoshangabad Rd, Near 11 Mile,

Indus Towne, Ratanpur Sadak, Bhopal,

Madhya Pradesh 462047

www.vrindia.co.in | info@vrindia.co.in

+91-8077020189, 7879677593, 7906497588