HOW TO GET HIGH ADDED VALUE PRODUCTS FOR INDUSTRIAL APPLICATIONS FROM AGRICULTURAL WASTES

PATENTED TECHNOLOGY

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ABSTRACT

The research group *Carbonaceous Materials and Environment* of the University of Alicante has developed a simple process to obtain activated carbon (monolithic) from an agricultural residue scarcely used to date, such as cocoa shell, whose characteristics and technical features make it highly suitable for several industrial applications such as environmental decontamination, liquids and gases treatment and heterogeneous catalysis applications, among others.

This process allows developing porous structures in a controlled way, without using binders or additional steps for consolidation. It can be applied to any mixture of agricultural and forestry residues. It is environmentally friendly and its industrial production requires low cost. The research group is looking for companies interested in acquiring this technology for commercial exploitation.

TECHNOLOGY ADVANTAGES AND INNOVATIVE ASPECTS

MAIN ADVANTAGES

- It is a very simple procedure.
- This technology allows develop activated carbon with a controlled porous texture.
- It allows revaluate vegetable waste into a high added value product for industrial interest.
- This procedure can be applied to any mixture of agricultural or forestry wastes and it requires low cost production.
- Raw material does not need additional binders, since show self-binder properties.
- It does not required additional steps to strengthen monoliths.
- It has a suitable microporous structure for applications in industrial flows (liquid or gas).
- The obtained monoliths have a high mechanical strength.
- This technology is viable (technically and economically).
- It is environmentally friendly.

INNOVATIVE ASPECTS

- The use of cocoa shell as a new lignocelulosic precursor to preparate activated carbon (monoliths) for industrial applications.
- In contrast with current procedures used to synthesize activated carbon monoliths, in the present invention, the mounding of precursor is made before the carbonization and activation steps.
- Raw material shows self-binder properties, so it is not necessary additional binders or additional steps for consolidation.

MARKET APPLICATIONS

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This procedure takes place within the field of materials technology, and in particular, it relates to a method for synthesizing activated carbon monoliths from agricultural wastes.

Specifically, it is a viable revaluation (technically and economically) of cocoa husks for activated carbon monoliths in applications of different industrial sectors, such as:

- Environmental remediation (for example: pollutant removal from air).
- Gas storage.
- Separation of gas mixtures.
- Purification of gas streams.
- As drying agent.
- Removal of impurities.
- Recovery and concentration of fossil fuels.
- Heterogeneous catalyst.
- Catalyst support.

COLLABORATION SOUGHT

The research group is looking for companies interested in acquiring this technology for commercial exploitation:

- License agreements.
- Search for funding opportunities to develop new applications, adapted to the specific needs of the company.
- Technology and knowledge transfer agreements.