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CONVERTING KITCHEN WASTE INTO CARBON USING KITCHEN WASTE CARBONIZER

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PENANG, 24 January 2016 - A group of researchers from Universiti Sains Malaysia (USM) led by the Dean of the School of Mechanical Engineering, Professor Dr. Zainal Alimuddin Zainal Alauddin has produced a kitchen waste carboniser (KWC) system which is capable of converting kitchen waste into carbon.

Zainal Alimuddin said, most of kitchen waste have high moisture content, and the system was designed specifically to enable all types of high water content organic materials to be processed without having the need to go through the drying process first.

“It is a very practical system where the waste are first separated into organic and inorganic materials, and then the organic materials are put into the KWC, and heated to 400 degrees Celsius for about two hours.

"During this process, the heat generated will cause the moisture content in the waste to evaporate, and when all the moisture is removed, it will turn into carbon,” said Zainal Alimuddin when introducing this product at a special press conference here recently. Also present was USM Media and Public Relations Centre (MPRC) Director, Mohamad Abdullah.

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He added that the carbon produced from KWC could be used to make briquette, a high grade smokeless fuel for cooking, starting a fire in barbeque pits and for domestic heating.

"When crushed, it can also be used as plant fertiliser. It is based on the concept of zero waste and is indeed a highly effective way to curb the problem of the disposal of domestic waste which could help reduce the impact on the environment,'' he said.

Zainal Alimuddin said, the present system, developed with a laboratory cost of RM15,000, could accommodate a capacity of 20 kg of kitchen waste at any one time. It can be modified to suit the needs and load capacity, with a maximum load of up to 200 kg of organic materials.

He further explained, for every four kilogrammes of organic waste that is put into the system, about 400 grammes of carbon is produced; hence a reduction of almost 90 per cent of the original weight of the kitchen wastes.

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Zainal Alimuddin, who has extensive experience in the field of biomass energy, said he was thankful for the funding from the Knowledge Transfer Programme (KTP) grant amounting to RM195,000 which enabled he and his team to carry out their research on converting kitchen waste into carbon which yielded this product.

This product has also won a gold medal at the 14th International Conference and Exposition on Inventions by Institutions of Higher Learning (PECIPTA 2015) in December last year.

“Besides a couple of local companies, KWC has also attracted the attention of several potential industry partners from Saudi Arabia and India, and we are looking into the possibility of collaborating with them to commercialise this product in overseas markets.

“Some other potential customers would comprise hoteliers, restaurant operators, canteen operators in student hostels and schools which generate tons of kitchen waste every year,” he said.

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