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CSMCRI to develop more efficient jatropha plants for General Motors

05 May 2010 | News

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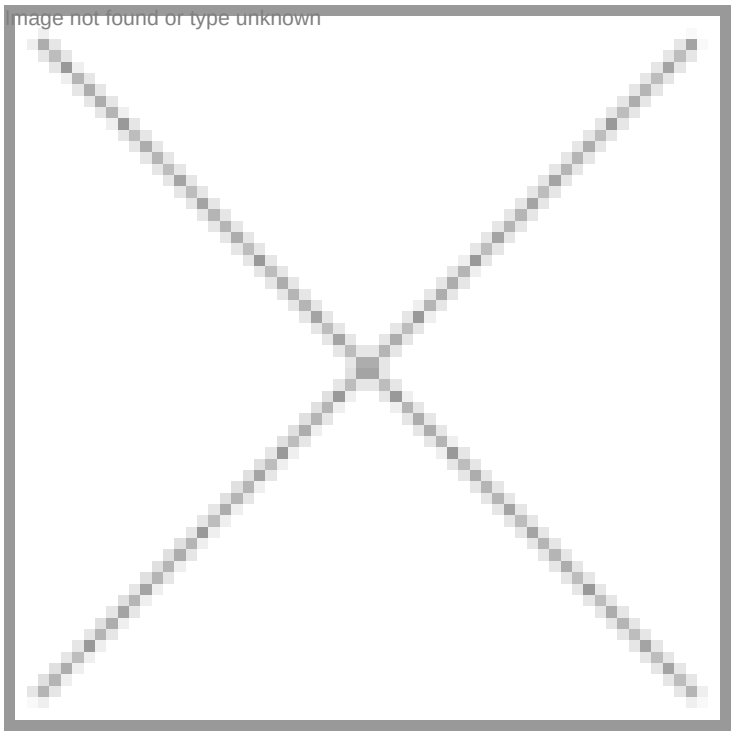

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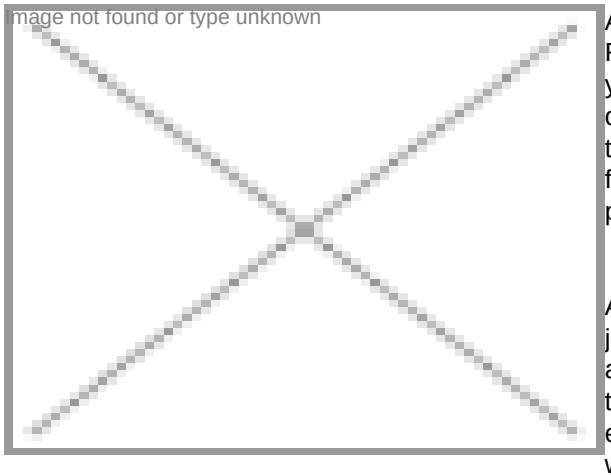

An Indian research laboratory, the Central Salt and Marine Chemicals Research Institute (CSMCRI), based in Bhavnagar, Gujarat, will start a 5-year, Rs 4.88 crore ($1.1 mn) research project to develop new varieties of biofuel bearing shrub, jatropha curcas L, for large scale plantation in the US. CSMCRI is one of the constituent laboratories of the publicly-funded Council of Scientific and Industrial Research (CSIR) network. The project is being funded by the world's leading automobile manufacturer,

According to GM India's President and MD, Karl Sym, CSMCRI will grow jatropha varieties in 83 hectares of land for research purposes under the agreement. While researchers at CSMCRI will try to develop frost-tolerant varieties and also attempt to increase biofuel conversion efficiency of the plant. CSMCRI scientists will modify the plant to make it withstand severe climatic conditions. These crops will be developed further for frost tolerance in US research institutes by General Motors.

Frost tolerance has emerged as one of the requirements if jatropha has to be commercially cultivated in the southern part of the US and Latin America. Jatropha curcas plant is a native plant of Brazil. So far, all attempts to grow jatropha curcas on commercial scale have not succeeded due to the havoc wreaked by frost on this otherwise hardy crop.

If CSMCRI scientist manages to genetically alter the crop to make it frost tolerant, it will be a major scientific breakthrough.To reduce pressure on biofuel crops replacing food crops, government policies restrict cultivation of jatropha to degraded

wastelands. Hence CSMCRI scientists also try to make the plants adopt better to very harsh environmental conditions that prevail in many parts of the country. Pushpito Ghosh, director of CSMCRI, said, â€œScientists will also try to prepare a full environmental life cycle of jatropha. The results will provide useful scientific data in the backdrop of severe criticism of jatropha and other biofuel plants being not very efficient in terms of improving the environmental conditions.â€?

Jatropha is a variety of shrubs and trees belonging to the genus Euphorbiaceae. There are over 175 varieties of this succulent plant that grows widely throughout the tropics and in parts of North America, Caribbean and Africa. The oil is extracted from the non-edible seeds and has been used successfully as biofuels in automobiles.

In fact, GM itself ran some of its vehicles on experimental basis for over 15,000 kilometers on biodiesel and the energy efficiency has been found to be very good. This has prompted the company to develop biodiesel-bearing plants in as many areas as possible.

Efficient agronomic practices for jatropha have not been developed so far on the lines of edible oil plants like canola, rapeseed.

Agronomic practices become important as the crop is touted as suitable for arid and marginal lands. Experts have found that confining jatropha and other biofuel crops to marginal lands is restricting the scope for increasing the crop's oil yields that is crucial to make biodiesel production economical and to make it a strong alternative biofuel.

BS Bureau

OSDD releases the C2D research findings

The Open Source Drug Discovery (OSDD) initiative of CSIR has released the results of its 'Connect 2 Decode' (C2D) project to re-annotate the biological and genetic information related to the Mycobacterium tuberculosis (Mtb) genome, in New Delhi.

C2D's findings may help to reveal the previously undiscovered details of tuberculosis (TB); resulting in developing TB drugs in India and other developing countries. This is the first time that a comprehensive mapping of the Mtb genome has been made publicly available.

The Mtb map has been hosted on a web portal (www.osdd.net) custom-developed by Infosys and uses an emerging format (Web 3.0) that allows users to get better search results. C2D demonstrates the power of people to connect through the Internet, particularly young people, and accomplish complex research tasks.
According to WHO, 17 lakh people die annually from TB. The emergence of multidrug-resistant TB (MDR-TB) and extensively drug-resistant TB (XDR-TB), where patients cannot be treated with first-line drugs (or, in the case of XDR-TB, more expensive second-line drugs), further underscores the need for a new generation of TB drugs.

Under the C2D project, researchers and students pooled their time and skills using online tools to provide insights into 4,000 genes of the deadly pathogens.
As a first-of-its-kind government initiative, the OSDD was launched in September 2008 by CSIR. It is a Rs 146 crore collaborative research effort that focuses primarily on TB. Its objective is to accelerate R&D for TB drugs. With a global community of nearly 3,000 members from 74 countries, the OSDD brings together scientists, doctors, students, policy experts, software professionals and others to work on TB research.