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Mission: Disease-free Jatropha hybrids

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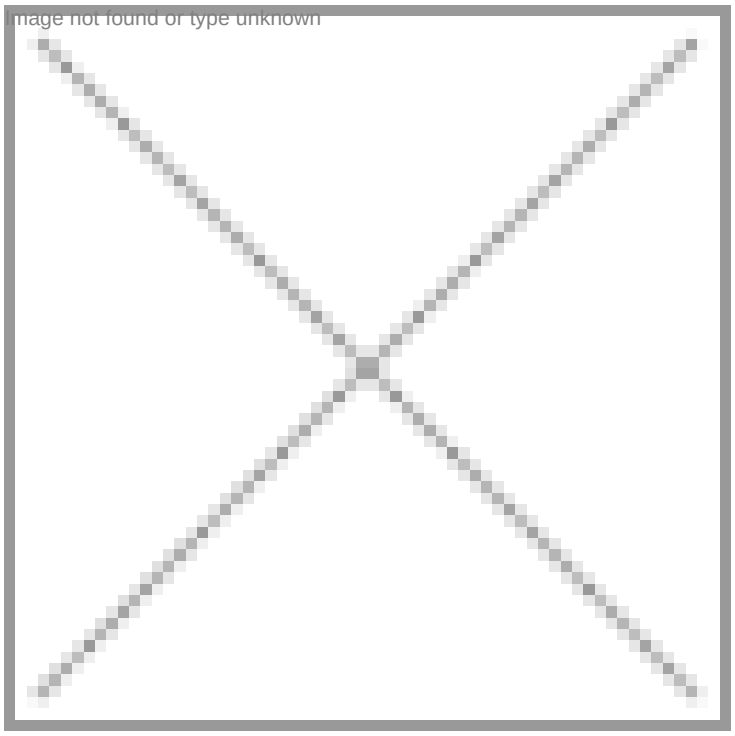

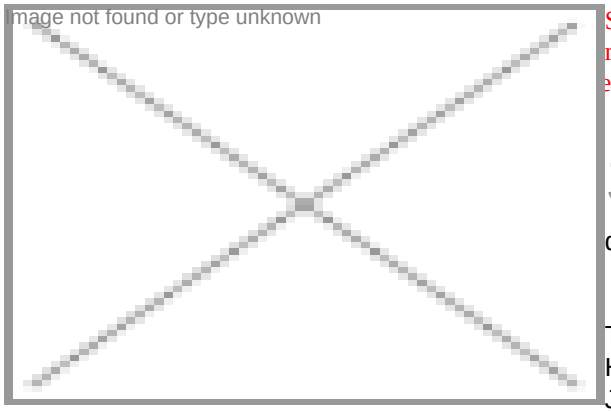

Support in the form of SBIRI funding helped Nandan Biomatrix to carry out micropropagation of its two hybrid varieties of disease-free Jatropha plantlets el

Some of the diseases found on Jatropha plants are leaf spot, leaf rust, downy and powdery mildews, stem and root rot. Also, seedling die-back and collar-rot are common in Jatropha nurseries. Moreover, disease incidence can be severe when the plants are grown under

To tackle this issue of diseased plantlets leading to decreased yield, Hyderabad-based Nandan Biomatrix has developed high yielding Jatropha curcas hybrids. The mass multiplication of Nandan-1 and Nandan-2 through micropropagation is expected to generate disease-free plantlets, which in turn can be cultivated in large acreages for enhanced production of biodiesel.

The project has found support in the form of funding from the Small Business Innovation Research Initiative (SBIRI), a scheme launched by the Department of Biotechnology (DBT) under the Ministry of Science and Technology for funding early-stage, pre-proof of concept research in the field of biotechnology.

The project involves development of an efficient micropropagation protocol for J. curcas hybrids, Nandan-1 and Nandan-2, and standardization of cost-effective tissue culture media for mass multiplication. The project has various stages. It starts with finding the best tissue culture conditions for regeneration of the two hybrids. Then, the testing of different media compositions for rapid bud breaking media, multiple shoot induction, elongation and rooting media will be carried out.

Also, the best acclimatization condition has to be found and quantification of the regeneration level and cost calculations are to be carried out. Following this, the tissue culture plants have to be evaluated in experimental fields through agronomic trials to test the level of pest and disease infestation.

Mr C S Jadhav, director-marketing, Nandan Biomatrix, says the SIBRI funding was a great help. â€œIt aims to strengthen existing private units with in-house innovative R&D and to create opportunities for starting technology-based or knowledge-based businesses in biotechnology and to stimulate technological innovation and product commercialization. Further, the SBIRI encourages other smaller businesses to increase their R&D capabilities and capacity, and uses private industries as a source of innovation, thereby fulfilling the government objective of fostering R&D,â€? he says.

The way forward

The project, started in January 2012, is progressing well with different sets of in vitro experiments being carried out. It is well-known that Jatropha can be grown in marginal and waste lands and requires very little input costs. A high-yielding Jatropha can generate interest among Jatropha growers for sustainable and profitable cultivation of the plant leading to higher production of biodiesel.

â€œThe outcome of the project looks bright with development of an efficient and cost-effective mass multiplicationtechnique. Micro-propagation will be a handy tool for production of plantlets of Nandan-1 and Nandan-2 hybrids that are high-yielding and would be uniform in growth, besides being disease-free. Also, the economic interest of Jatropha growers can be upheld, along with that of the processors and end users,â€? says Mr Jadhav.

Rahul Koul in New Delhi