

Better quality oil from fuel crop plant

Scientists modify plant to give longer-lasting fuel with lower emissions

By FENG ZENGKUN

SCIENTISTS here have genetically modified a biodiesel plant to produce better quality oil.

The plant, called *Jatropha*, is grown in countries such as the Philippines, India and Brazil, and its oil is used as an environmentally friendly alternative to petrol in cars and aeroplanes.

The scientists modified a gene in the plant so that it produces a higher percentage of oleic acid. This produces fuel that can be stored for longer periods, emits lower carbon dioxide and provides a

smoother ride when used in vehicles.

The project, a collaboration between the Temasek Life Sciences Laboratory and global bioenergy firm JOil, is believed to be the first of its kind in the world.

While the research has been done in laboratories to date, the scientists plan to set up a farm in Singapore by year-end to test their new strain in the field. They declined to provide the farm's location.

The two-year trial will cost about \$1 million and take up 1.4ha, about the size of three football fields. This will be funded by JOil, which is conducting *Jatropha* trials in India and Indonesia.

Jatropha has been touted as a wonder crop because it can produce more oil per hectare compared with other crops grown for the same purpose, such as soybean and corn.

It can also survive in poor soil, which

means it does not need to be grown on land which would otherwise be used for food crops. The crop thrives in warm, frost-free climates.

Carriers such as Germany's Lufthansa, Brazil's TAM Airlines, Air New Zealand and Air China are starting or have already carried out successful *Jatropha* fuel trials on their planes.

But detractors say the plant requires too much water and that growing it in poor soil results in harvests that yield little oil, although this has been disputed.

The crop has suffered several high-profile setbacks in recent years.

In 2009, oil and gas giant BP pulled out of a deal involving some 200,000ha of the crop in Africa, India and South-east Asia – about 25 per cent of worldwide *Jatropha* planting at the time.

Dr Hong Yan, JOil's chief scientific offi-



The seeds of the *Jatropha* plant, which is grown to produce oil that is environmentally friendly and used as an alternative to petrol in cars and aeroplanes. ST PHOTO: JESSICA CHEAM

cer, said the team is working on improving their crop's yield and expects to double it from about 1,500kg of oil per hectare now to 3,000kg by 2020.

The figures are for the plant cultivated on land which is not fit for food crop production.

The scientists also plan to test the new breed in various tropical and subtropical climates, such as those in India and Afri-

ca, in future.

They are also conducting research into farming practices, such as finding the ideal amount of fertiliser and pesticides to be used, and spacing between plants that could further increase its yield.

And the team is further refining the plant to make it withstand droughts and insects better.

✉ zengkun@sph.com.sg