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Biotechnology and biodiversity - friends or foes?

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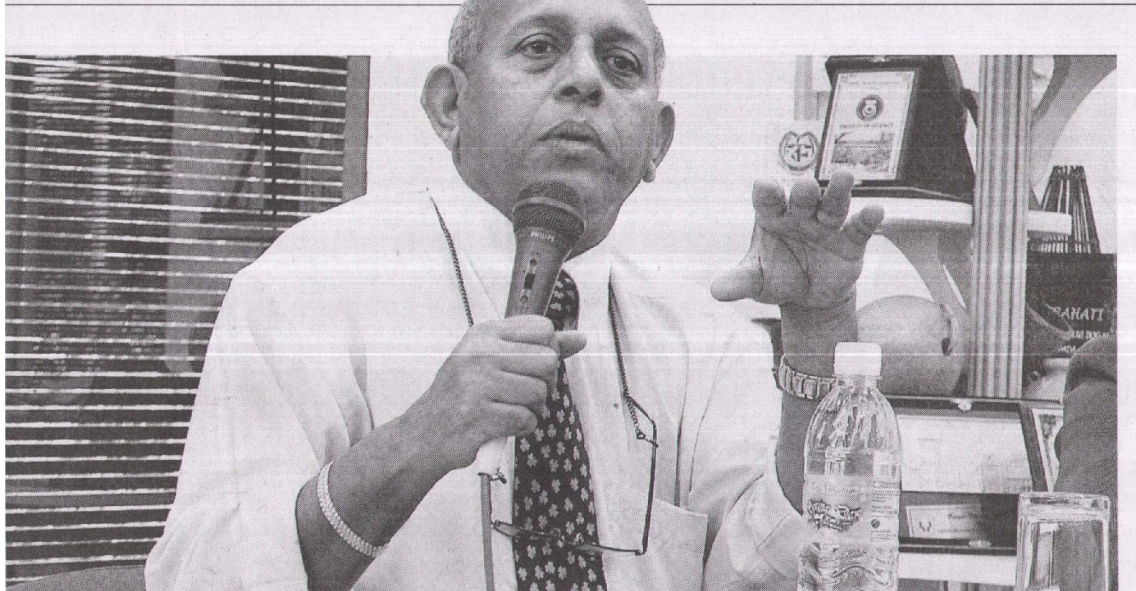
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SOLUTION AGAINST STARVATION: Dr Daniel states the case for GMOs versus conventional crops in countries contending with starvation and factors adverse to agriculture.

Biotechnology and biodiversity – friends or foes?



CURING MISINFORMATION: Dr Maha believes that the main enemy of biotechnology is misinformation.



BIODIVERSITY VS BIOTECHNOLOGY: Dr Rita explains the obstacles faced in synchronising biodiversity with biotechnology.

By

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A coexistence between biotechnology and biodiversity can be achieved through the balance of a wealth of experts all across the board. With the experience of experts like molecular biologists, taxonomists, botanists, ecologists, and chemists amongst others, the ecosystem can be conserved while serving as a supply of biodiverse resources.

— Dr Mahaletchumy Arujanan, MABIC executive director

WITH Malaysia ranked as one of the 12 most bio diverse countries in the world — home to 60 per cent of the world's known species — biotechnology is becoming increasingly important as we look at our natural resources and ask how we can profit from it.

In 2005, the Malaysian government launched the National Biotechnology Policy with the main purpose of developing the country into the next hub of biotechnology.

Biotechnology is touted as the key driver to propelling Malaysia closer to Vision 2020 in three core areas — agriculture, healthcare and industry.

This vital sector was the main focus of a one-day seminar entitled 'The Convergence of Biotechnology and Biodiversity in Wealth Creation' jointly organised by the Sarawak Biodiversity Centre (SBC) and the Malaysian Biotech Information Centre (MABIC) — a non-profit organisation that seeks to spread awareness of biotechnology and make technical information more accessible to non-technical members of the public in the interest of national development.

In her seminar 'Biotechnology & Biodiversity: Friends or Foes?' MABIC executive director Dr Mahaletchumy Arujanan aimed to create awareness of the benefits and the procedures utilised in biotechnology by dispelling general preconceptions such as 'natural is safe', biotechnology and biodiversity cannot coexist, and that organic or subsistence farming can feed the world.

In fact, biotechnology's benefits covers a gamut of sectors from agricultural applications, medicine (potential drugs and vaccines from organic sources), nutraceuticals (functional foods), industrial applications (biofuel and bioreactors), biopiracy (establishing a genomic or proteomic database to prevent theft of plants or organisms at the border) and conservation (the cloning of endangered species). Biotechnology is the tool that extracts the latent and as yet untapped potential of our ecosystem.

This is what makes a lot of

environmentalists nervous. With nature treated not unlike a pharmaceutical cabinet rather than a sacred source, one wonders whether biotechnology is the new threat to our rainforests.

According to Dr Maha, a coexistence between biotechnology and biodiversity can be achieved through the balance of a wealth of experts all across the board. With the experience of experts like molecular biologists, taxonomists, botanists, ecologists, and chemists amongst others, the ecosystem can be conserved while serving as a supply of biodiverse resources.

SBC chief operating officer Dr Rita Manurung admitted that the interests and issues between biodiversity and biotechnology remain polarised rather than synchronised, and that it will take some time before this changes.

"While I am compelled to protect biodiversity, a lot of the time we are just not properly informed about biotechnology and want to know more before certain technologies are implemented," she said.

"There's a double standard when it comes to testing 'natural' plants and GMOs (Genetically Modified Organism)," countered Dr Maha when addressing an objection from an audience member to her statement that the most poisonous, toxic and allergenic compounds are of natural sources.

The audience member cited that it takes a matter of traditional knowledge or a test by 'rule of thumb' for the toxicity of plants, but Dr Maha conveyed that for every rule of thumb solution to test the toxicity of these natural substances, GMOs have had to undergo stringent lab tests and analyses to assess their safety for public consumption. "So which substance should you trust more?"

The benefits of GMOs run

rather like the domino effect. Besides producing crops with significantly higher yields than conventional crops — which will minimise the opening of new land for agriculture — GMOs can also be pest-resistant leading to the reduction of chemical pesticides, carbon dioxide emissions, pesticide run-off, and permanent savings in carbon dioxide equivalent to taking 430,000 cars off the road.

For Forest Research Institute of Malaysia scientist Dr Daniel Baskaran K, the choice between GMO crops and conventional crops can be the difference between life

and death.

“The size of the earth remains the same while human populations keep rising and chemical fertilisers are decreasing the capacity of the soil to reproduce. In countries where starvation is an issue, biotechnology or genetically modified food produces significantly higher yields than conventional crops on a smaller plot of land, in highly acidic soil where conventional crops would not be able to grow and is resistant to pests.”

The case against biotechnology is a rather familiar story — fears of horizontal pollination between GMOs with surrounding native vegetation, the creation of ‘super-weeds’ that will be resistant to herbicides, or subjecting the public to a product or food source that could have unpredictable and irreversible adverse consequences. However, there has been little solid evidence to condemn biotechnology except fear and hysteria. For Dr Maha, the main enemy of biotechnology is misinformation.

After some instances where the local media has misrepresented the facts of some biotechnology projects, MABIC has resolved to close the communication gap between scientists and reporters by organising three workshops a year.

“We want to increase communication between scientists and reporters so that the media gets the correct information about biotechnology,” said Dr Maha.

Whatever the final verdict is, biotechnology seems like the final frontier in a world where organic, non-genetically modified alternatives are fast diminishing.