

Biotechnology

reality bites

Looking at the way the politicians and press are promoting biotechnology in the country, you would expect to see a boom in the biotechnology breakthroughs reported and the industry. But it seems to be more hype than anything of substance. SEE YEE AI tries to understand this Malaysian phenomenon...

The circus came to town and now thankfully, it has gone. BioMalaysia 2002 held at the Putra World Trade Centre, succeeded admirably as a showpiece for Malaysian biotechnology, those in the know had this niggling feeling that it had more flare than substance.

There were lots of impressive displays, attracting large crowds of spectators (spectators because most admitted that they were here to see and learn and not get involved specifically) but at the end of the day, most serious scientists and entrepreneurs admitted that it was just a great event at best. BioMalaysia was an ambitious combination of scientific symposium, trade exhibition and business partnering. Perhaps it suffered from a surfeit of ambition and a paucity of substance.

By attempting to cater to all, the event ended up being found lacking by many. Scientists were disappointed with the lack of depth in the presentations as speakers resorted to off-the-shelf presentations delivered elsewhere or dumbed down technical presentations to cater to a wide audience.

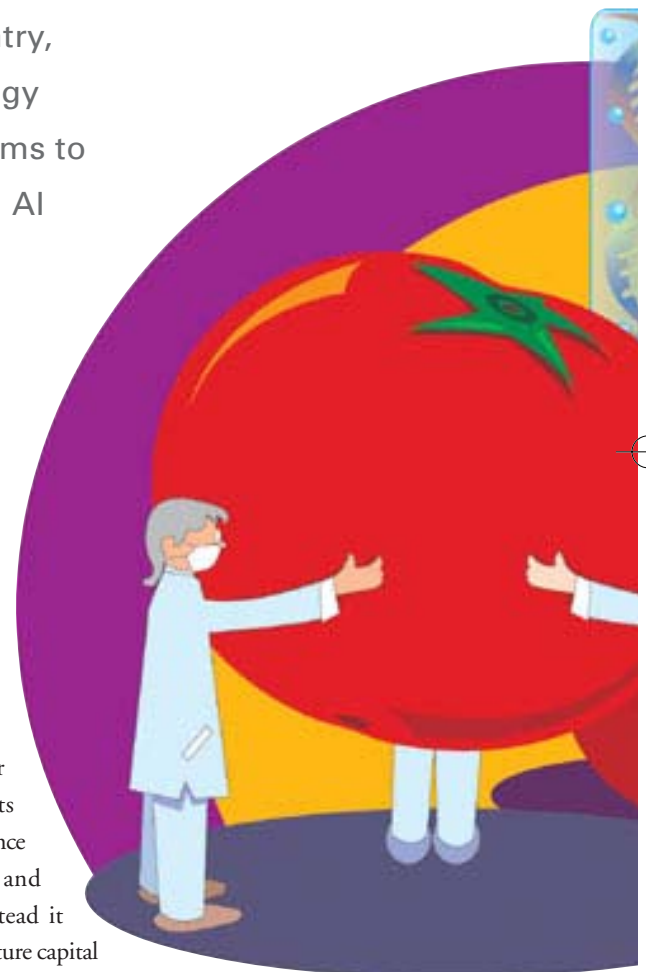
Entrepreneurs grumbled about the symposium being too technical and the exhibition offering nothing concrete for either investment or development.

And the business partnering attracted less participation

than expected. One would have expected the business partnering sessions to be filled with eager beaver scientists hungry for a chance to sell ideas and discoveries. Instead it was more of venture capital companies, angels, business development organisations telling a mish-mash audience what was potentially available if there was something to develop. It would have been bizarre had it happened elsewhere in the world. In Malaysia? Just another day's work.

But at least it showed the world Malaysia's commitment to biotechnology despite us being abundantly aware of the controversies - the Prime Minister, in his opening speech, even alluded to accidental 'monsters' created through cloning and addressed the fear over genetically modified foods.

Thankfully the anti-biotech lobby stayed away (an



uncommon occurrence as biotechnology events elsewhere have always had anti-biotech protests as a side-show) and the press gamely played along in the general 'Malaysia Boleh' spirit.

At the exhibition hall, the booths indicated how much other sectors had hopped on to the biotechnology bandwagon. There was a large booth taken up by a Chinese traditional medicine company (it was unclear which aspect of its operations fitted the biotech umbrella), countless scientific equipment companies and several state government investment arms hoping for a share of the biotech pie.

Conspicuous by their absence were the big pharmaceutical and life science players. Pfizer, SmithKline Beecham, Bristol-Myers Squibb chose to stay away. Also missing was Syngenta,

Dupont and Aventis from the plant science side. While life science giant Monsanto had a token booth, they played a relatively low profile even though there were interests in obtaining and planting their biotech seeds here in Malaysia!

Of course the grandest booths belonged to the Ministry of Science, Technology and the Environment (MOSTE) and the local universities; who carted whole labs into the exhibition hall. Still, much of what was showcased was very much experimental stuff, with little in the way that was saleable.

All hype, no substance?

One businessman stepped into a booth and demanded, "Tell me, is there anything here I can develop, market and sell? I don't want experimental stuff. I want proven technologies." But at the same time he wasn't interested in proven technologies like plant tissue culture or food ingredients.

The incident exemplifies the weakness in Malaysia biotechnology: the reality just doesn't live up to the hype at present.

Take the BioValley: The official document on the project has been floating around at MOSTE for at least a year and a half now, yet there is little concrete information about the project apart from the proposed 3+1 concept: three new research institutions (molecular biology,

pharmaceutical and nutraceuticals, agri-biotechnology) and a business centre.

Figures bandied about the project range from a modest RM1 billion a year to USD12 billion in 10 years. But with the project having starts and stops, and with the leadership of the project being kept under wraps and negotiated behind closed doors, there is little that investors, scientists and the public are privy to about the actual progress and development with the project.

In addition, politicians and the press have played up Malaysia as being one of the 12 mega biodiversity centres in the world as one of our advantages and prerequisite to leadership in the biotech field. Using that as a pre-condition to biotechnology success is equivalent to saying that a country with large deposits of iron ore will be a leader in the automotive industry. The reality is a lot more complicated than that.

Also, while certain policy makers and scientists have rightly concluded that Malaysia will and should concentrate on agricultural biotechnology, again the PR machinery goes to town about the potential in pharmaceuticals. An example is the work done by the MMBPP (MIT-Malaysia Biotechnology Partnership Program). The programme's two main thrust areas are in Tongkat Ali and oil palm. Curiously, Tongkat Ali seems to grab the limelight, with the progress in the oil palm work is conveniently omitted or played down.

Granted that pharmaceuticals are a high-risk, high-return game, and with Tongkat Ali showing properties similar to wonder drug Viagra, it is only natural that people pin high hopes on pharmaceuticals.

But as Dr Kim S. Tan, a Malaysian who has had his share of success in the biotech pharmaceutical field, attests, chances are there will be more high-risks than high returns in biotech drug development.

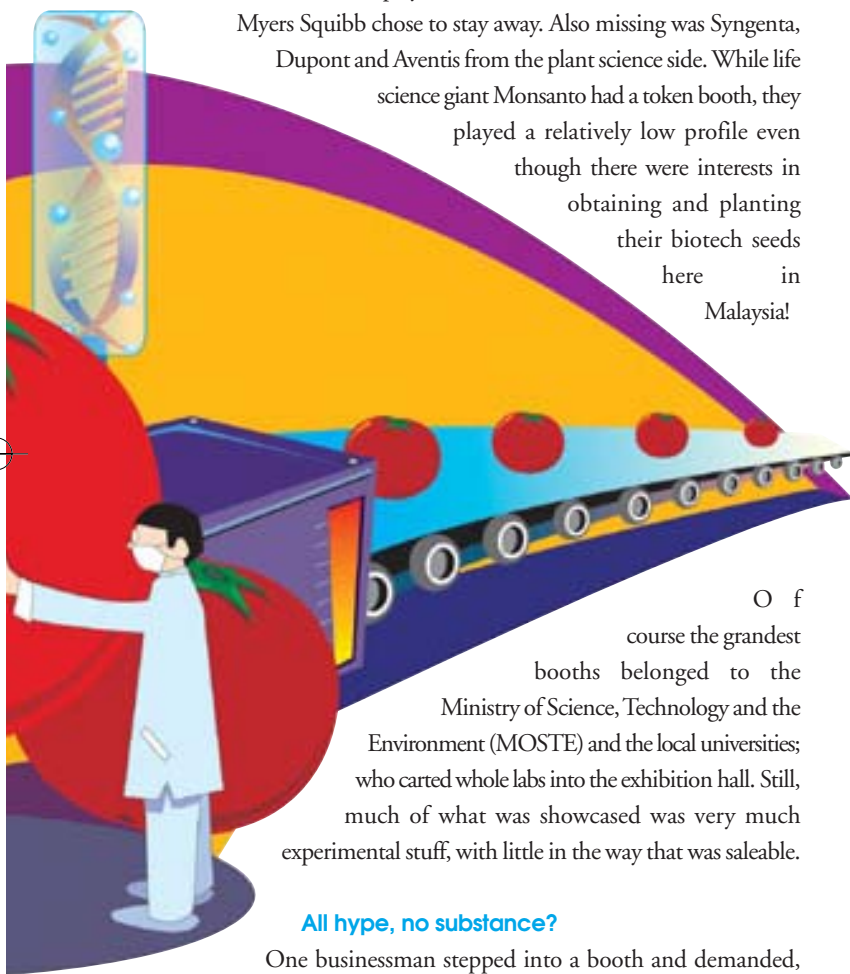
Agricultural biotechnology, on the other hand, doesn't claim to produce any headline-grabbing solutions. MARDI's (Malaysian Agriculture Research and Development Institute) work in papaya and rice, for instance, are to develop disease-resistance varieties, or fruit varieties that keep better. Hardly sexy, literally, when compared to a potential Viagra in Tongkat Ali.

But at least MARDI has products that are ready for field-testing. So does MPOB (Malaysian Oil Palm Board). And this is where they hit another biotech roadblock.

Legislative support pending

Government support in biotechnology has centred on financial incentives, infrastructural support and investment. However one crucial area, legislation, has created much confusion and dissatisfaction.

Malaysia's biosafety regulations have not kept pace with the country's enthusiasm at policy level. The Biosafety Bill that was



Feature

drafted in the mid-1990s, is still doing its rounds at the various government departments. When asked about the progress of the bill, the answer ranges from “It’s in inter-ministerial discussion” (the penultimate stage before it is presented in Parliament) to “It has been sent back for a complete re-draft”.

The Biosafety Bill, which will govern all matters related to genetically modified organisms (GMOs), with the exception of pharmaceuticals, will regulate the release and use of all GMOs, including those meant for food and feed.

In the absence of a law, scientists now follow guidelines on the field-testing of GMOs. While adherence to these guidelines are strictly voluntary, most research institutions have kept to them and are also monitored by their own Institutional Biotechnology Committees, which oversee all laboratory and field experimentation.

Approval bottleneck

Nevertheless, adherence to the guidelines have not been easy and in the case of some research projects, actually acted as an obstacle to research progress.

The bottleneck lies with the Genetic Modification Advisory Committee (GMAC) that gives the approval for field trials. Members of GMAC, which consist of scientists from various universities and research institutions and an NGO, are called to meetings on an ad hoc basis. The committee meets about three to four times a year to go through approvals.

In previous years, submissions were rare, with only one submission for food use. Monsanto’s Roundup-Ready soybean was submitted and received approval in 1996. Monsanto says that it submitted its bt corn (corn resistant to insects) for approval at the same time but has yet to hear from the committee on the decision. Officially, Roundup Ready soybean remains the only approval GMAC has made. No field trials on local or foreign GMOs have been officially approved.

Scientists at MPOB are chaffing about the rejection of their application for field testing. Members of GMAC asserted that MPOB’s application was rejected because they failed to produce information to convince the committee to give them

the go-ahead. MPOB officials claim that the guidelines provide little guidance on the requirements and that GMAC has not provided information on what else needs to be done.

In the meantime, a scientific officer at MPOB laments that he will have 10,000 seedlings ready for field-testing at the end of the year and no approval to do so. Clearly, until and unless the Biosafety Bill is passed, the mechanism for field trial approvals is formalised and a permanent GMAC is set up, field-trial approvals will continue to be a bottleneck for biotechnology research in Malaysia.

As Dr Hassan Mat Daud, director of MARDI’s biotechnology centre says, “We could have a commercial product ready in about five years but whether the product will meet regulatory approval and how long trials required to meet that approval will take is another story.”

Also, there is a gap between the number of students graduating from local and foreign universities trained in biotechnology and jobs available. Ironically, the government recognises that there is a shortage of workers in the biotechnology sector but at the same time is unable to create jobs for the hundreds of fresh biotechnology graduates each year.

A local lecturer said resignedly that he knows his best students are headed south of the border to Singapore where the job prospects in biotechnology are much better. Will they return when they obtain their PhDs in a few years’ time? There are few guarantees that they will.

But while in the short-term biotechnology remains more hype than substance, scientists at work on the ground are gritting their teeth and hoping that the hype will soon die down and they will be left to do their work in peace. Ultimately biotechnology is just a set of technologies that will give produce useful products

from living things. Regardless of the hype or lack of it, scientists will make use of the technologies to produce products that would benefit Malaysians.

Maybe the only thing we need to worry about is whether they have enough incentive to do the work here or cart their expertise elsewhere. ●

“We could have a commercial product ready in about five years but whether the product will meet regulatory approval and how long trials required to meet that approval will take is another story.”

