UNIMAS' contribution to biodiversity industry

UNIVERSITI Malaysia Sarawak (UNIMAS) has recorded several milestones in research, especially in the conservation of biodiversity and development of biotechnology.

An important research facility at UNIMAS is the Institute of Biodiversity and Environmental Conservation (IBEC), which focuses, often with local and international collaboration, on the ecology and conservation of biota and threatened habitats in Borneo.

This has resulted in the creation of databases on terrestrial and marine biodiversity, such as the discovery of montane endemics at Mount Murud, which were previously recorded only on Mount Kinabalu.

In a recent expedition to Mount Murud, IBEC scientists led by Associate Professor Dr Fatimah Abang discovered the montane butterfly *Ptychandra talboti*, which is endemic to Borneo, and the first record for the mountain.

According to IBEC herpetologist Associate Professor Dr Indraneil Das, several new taxa of frogs, especially of the *Polypedates* and *Pelophyrene* genera, were also collected.

SEVERAL MILESTONES: UNIMAS' Institute of Biodiversity and Environmental Conservation focuses on the ecology and conservation of biota and threatened habitats in Borneo.

The endemic bird, Mountain Blackeye, was abundant at 2,000m above sea level while the Mountain Treepie was common at a lower elevation.

In environmental conservation, IBEC scientist Associate Professor Dr Lau Seng developed a voltammetric method to detect arsenic speciation in fresh water. This method has proven to be cheap, reliable and simple to operate.

Future research at IBEC will continue to focus tropical biodiversity, environmental conservation, terrestrial ecology and coastal marine ecology.

Ecosystems that are unique and threatened by human activities will be priority areas for fieldwork.

Meanwhile, in line with Vision 2020 and the formation of Biovalley Malaysia (BVM), UNIMAS is undertaking research geared towards the development of biotechnology-based activities and product development to help stimulate the industry in the Malaysia.

It is interested in providing input to help develop Malaysia's biotechnology industry in the future, including developing vaccines against dengue and Japanese Encephalitis (JE).

Its Institute of Health and Community Medicine has been collaborating with two biotechnology companies to develop genetically-engineered vaccines against dengue and JE.

One is Malaysian company Venture Technologies Sdn Bhd (VT), which 10 years ago accomplished a world first by producing a dengue diagnostic kit in collaboration with a biotechnology company in Singapore.

Since then VT has produced kits for the diagnosis of JE and has been involved in research for the development of a dengue and a JE vaccine. Together with Bavarian Nordic, a biotechnology company listed on the Co-penhagen stock exchange, VT and UNIMAS have produced prototype vaccines against dengue and JE and these are undergoing pre-clinical testing at the university.

Both vaccines are based on genetically engineering important genes of these viruses into a well-tested virus vaccine called Modified Vaccinia Ankara (MVA).

MVA was developed as a vaccine against smallpox and has a strong record of safety and is considered a strong candidate to deliver new recombinant viral vaccines that are safe. UNIMAS also has in the pipeline biotechnology-based diagnostics and vaccine candidates for development and possible commercialisation.

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