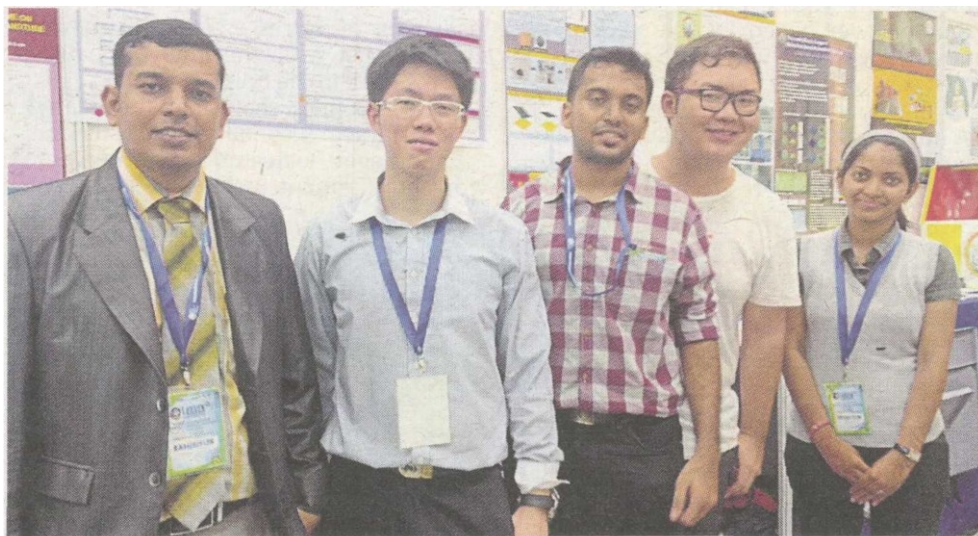


Kudos for turning waste to fuel



We won!: (second from left to right) UCSI chemical engineering students Jing Ren, Selvaraja, Chun Man and Shapnathayammal with their lecturer Mubarak Mujawar (left) at the event.

UCSI University chemical engineering students took the plaudits in the recent fifth International Engineering Invention & Innovation Exhibition (i-ENVEX 2014) 2014 in Kangar. They bagged three gold medals and one silver medal for their efforts.

The gold medals comprised the Malaysian Invention and Design Society (Minds) Gold Award and two category awards.

The students were ecstatic about their win, having edged out more than 87 entries from local and foreign institutions of higher learning from countries such as Korea, Taiwan, Croatia, Iraq, Ukraine, Indonesia, Cambodia and Romania.

Notably, the event necessitated the participants to present their final year projects to the public and a panel of internationally-recognised Malaysian researchers.

It was an amazing experience for Chin Chun Man and Selvaraja Guala Segaras they presented their final year project on the production of bio-products as a source of energy and waste water treatment.

Chun Man explained that the raw material used was palm oil sludge — waste that was usually disposed after palm oil production.

“We converted the waste to two products, namely bio-oil and biochar, from the palm oil sludge using a fast pyrolysis process.

“Bio-oil is a carbon-based liquid fuel that is a potential feedstock for fuel while

biochar can be used as a heat source and remove heavy metal in wastewater,” he added.

The team, including Teoh Kai Wen developed the alternative fuel source to not only overcome fossil fuel dependence, but to also reduce pollution resulting from fossil fuel production.

Bagging the third gold medal for UCSI, Wong Jing Ren also developed a new cellulase enzyme that may be able to minimise environmental problems associated with its usage in the industrial process and other applications.

“It combines both the immobilisation of cellulase enzyme (attachment of cellulase to a solid support) and functionalisation (surface modification) of multi-wall carbon nanotube (MWCNT) processes,” Jing Ren explained.

“The past few decades have seen cellulase enzyme being used as the catalyst in industrial processes but large quantities are often involved and the associated purchase cost for raw cellulase is very high,” he said.

“There were other limitations as well but these only spurred me on to develop a solution to address these concerns.”

Shapnathayammal Sekhar, whose research was titled, “Absorption and kinetic study on removal of magnesium ions from wastewater using rice husk based magnetic biochar”, also won a silver medal for her research.