

New rice variety

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A TEAM of Universiti Kebangsaan Malaysia (UKM) scientists have successfully produced a variety of rice which not only increases paddy yield but also has a low glycaemic index suitable for diabetics.

It is a new paddy variant G33 named UKMRC9 which can increase local red rice production.

The research has been carried out by Prof Dr R Wickneswari Ratnam who is a plant genetics and biotechnology expert from the Faculty of Science and Technology with a team of 14 other scientists from UKM with the cooperation of the Malaysia Agricultural Research and Development Institute (MARDI), Universiti Putra Malaysia (UPM), Malaysia Nuclear Agency (MNA) and Universiti Malaya (UM).

Prof Wickneswari described it as a superior red rice developed through conventional breeding involving controlled cross-breeding between cultivar MR219 and wild rice *Oryza rufipogon*.

It involved the transfer of genes of the wild type to the common paddy produced by MARDI now extensively cultivated in the country.

Prof Wickneswari said the cross-breeding was done manually.

"We did not make any manipulation. We took pollen from the wild rice and pollinated it with the modern rice and used genetic markers to determine whether it was cross-bred or not.

"This was because there was a possibility that the cross-breeding would not materialise. We also wanted to know how much of the wild rice genes was transferred to the modern rice that we eat today," she said.

The initial research, she added, was aimed at increasing yield so that enough rice could be produced in the country for its own consumption, but the

red rice was found to be suitable for diabetics.

She said the agronomic features of UKMRC9 include being of intermediate plant height, a growth duration of 125 days, a phenotypic appearance with a high grain yield of 5.5 tonnes per hectare, is blast disease resistance and slender in shape.

The research received a government grant of RM840,000 for the first phase which took three years from 2002 and involved scientists from UPM, UM, MARDI with scientists from UKM as the lead researchers. A second government grant of RM1mil was received under the Ninth Malaysia Plan until 2010.

"We have to bear in mind that around 2002 there was a shortage of rice and the price was high in the market so the government launched a programme to ensure we have enough food supplies," she said.

"The main issue that we had to confront was how we could increase the yield of rice through research. At that time research on rice was already carried out in China and the United States using the wild rice, *Oryza rufipogon* which originated from Malaysia," she explained.

She said red and black rice called huma rice is planted by farmers in Sarawak.

"For our red rice, it was planted on an experimental basis at the MARDI Station in Seberang Perai involving three of five varieties besides eight types of white rice which also gave high yields and could be planted in our rice fields.

"We asked people to cook and eat the red rice and found that the digestion is a bit slow. The rice is retained longer in the intestines so there will be no spike in the level of glucose," she said.

Prof Wickneswari said they did not specifically intend to produce the red type rice but it happened by chance as control-

led pollination was done followed by backcross breeding.

On the wild rice, *Oryza rufipogon*, Prof Dr Wickneswari said it could be eaten and is a wild relative to the normal rice consumed daily.

"Rice has nine types of 'genome' all having their own traits. The ones cultivated in the tropics are different from the type grown in temperate areas. In Africa the farmers use a variety derived from *Oryza glaberrima*," she added.

The final phase of the research project was the completion of all its documentation last November. It was now time to market it, she said.

"The commercialisation rights of the red rice has already been given to UKM Technology, where an agreement has been signed with a company specialising in producing seeds for testing," said Prof Wickneswari. — *UKM news portal*



A new paddy variant named UKMRC9 which can increase local red rice production.



Prof Wickneswari holding a packet of the rice which not only increases paddy yield but also has a low glycaemic index suitable for diabetics.