

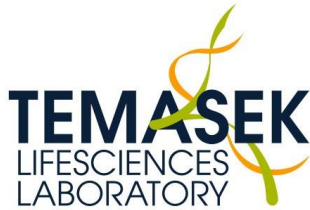
PRESS RELEASE

Singapore's Temasek Rice Developed by TLL Scientists for Regional Food Security

6 August 2016, Singapore – Scientists at Temasek Life Sciences Laboratory (TLL) have successfully developed a fragrant rice variety - Temasek Rice, that possesses superior grain quality, is high in dietary fibre and imbued with traits that can mitigate threats from factors such as climate change. This will help contribute to longer-term food security for the region and eventually benefit the future generations of Singaporeans with rice at stable and affordable prices.

The core of the research programs at TLL focuses on sustainability as well as the well-being of the future. In the area of agricultural science, TLL scientists have worked on various strategies to improve crop productivity through the discovery and use of better genetics for enhanced yields and stronger traits to mitigate threats brought about by factors such as climate change which could have severe direct and indirect impact on the food security needs of the region.

Dr Yin Zhong Chao, Senior Principal Investigator at TLL, led a multi-national team of scientists to find out how plants are able to deal with environmental and biological stresses on the molecular level and uses it to build up its own natural defence mechanisms. His research has led to breakthroughs that were eventually published in high-impact, peer-reviewed scientific journals like *nature*, with patents filed in many countries.



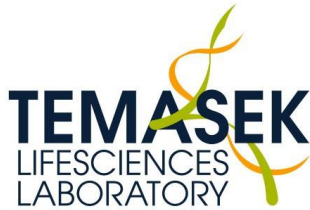
In an effort to translate his research applications to positively impact communities, Dr Yin's team also embarked on a strategic research program to utilise modern breeding technology to rapidly generate a library of new and improved rice varieties with stacked specific desirable traits. Some of these traits include being able to withstand extreme climate conditions, such as floods and droughts, as well as resist bacterial and fungal diseases.

Through the use of genomic and marker-assisted breeding technology, his team is able to precisely select the desirable traits and introduce to an elite parental rice line by way of natural crossing. This technology involves the use of DNA markers that are naturally linked to a gene of the desirable trait to conduct gene selection during breeding. This increases selection efficiency and helps to speed up the development of rice variety with desirable traits and from different backgrounds.

This led to the eventual creation of the Temasek Rice – an elite, semi-dwarf aromatic rice variety with traits that can resist biotic and abiotic stresses and allow the people in the region to grow rice sustainably using lesser natural resources. As a result, this will help contribute to longer-term food security for the region and eventually benefit the future generations of Singaporeans with rice at stable and affordable prices.

According to Dr Yin, Temasek Rice is 100% natural, has excellent grain quality, high in dietary fibre and more palatable. Furthermore, the technology behind the Temasek Rice has allowed his team to work closely with farmers in Asia to develop sustainable farming practices so as to improve productivity and livelihoods.

“The development of Temasek Rice is a successful example of how knowledge generated in a laboratory setting can be translated to products for farmers to apply in the field. This



will help position Singapore, an agricultural-neutral country, to be a R&D centre for modern agrobiotechnology and agriculture, especially in the South-East Asia region.”, said Dr Yin. “We will continue to work on both basic and strategic research programs to further design new and improved rice lines so as to benefit the rice farming community.”

Professor Yu Hao, TLL Executive Director and Temasek Senior Investigator, says, “Temasek Rice is an important showcase of how the pursuit of science and research discovery can be translated to make a difference in humanity and the environment. Congratulations to Dr Yin and his team on the successful development of Singapore’s own rice and TLL hopes to produce more of such innovations that are able to positively impact lives, environment and the economy in one way or another.”

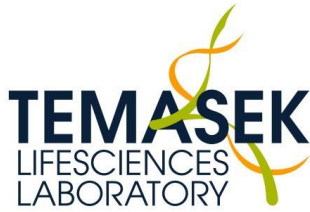
About Temasek Life Sciences Laboratory (TLL)

TLL, established in 2002, is a beneficiary of the Temasek Trust and affiliated to the National University of Singapore and Nanyang Technological University. The research institute focuses primarily on understanding the cellular mechanisms that underlie the development and physiology of plants, fungi and animals. Such research provides new understanding of how organisms function, and also provides foundation for biotechnology innovation.

For more information, please visit www.tll.org.sg.

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