

# GRAINS OF TREASURE: Rice for Healthy Heart

Dr. SiawSan Hwang  
shwang@swinburne.edu.my

**S**winburne Sarawak is collaborating with Swinburne Melbourne, Sarawak General Hospital Heart Centre and Okayama University in Japan to research the protective effects of rice bran extracts for our hearts. As the production of rice grows and expands, rice waste products also increase. One such product is bran, which is the outer layer of the grain enclosed within the chaff and

has a high nutritional value. It has abundant phytonutrients such as polyphenols, vitamins and dietary fibres which exhibit multiple health benefits because of their antioxidant properties. So far, the health potentials of the local rice varieties in Sarawak are underexplored and our research shows that antioxidants found in rice bran have protective effects against oxidative stress in cardiac cells.

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Dr. SiawSan Hwang (second from right) with her research team

Reactive oxygen species are highly reactive molecules formed as by-products from the normal biological processes in our body. Moderate amount of these radical species are essential for the normal functioning of cells; however overproduction can damage the cell structure leading to oxidative stress which is well recognized as one of the causal factors of cardiovascular disease (CVD). To counteract the excess free radicals, the body's

antioxidative mechanisms are insufficient and require external antioxidants as an extra defence against this oxidative damage. We have tested the antioxidant capacities from the rice bran in mammalian cell culture model and the results look promising; this cell-based study has revealed the potential of rice bran extracts to be free radical scavengers, protecting cardiac cells from oxidative injuries.

# ANTIOXIDANTS FOUND IN LOCAL BARIO RICE

732

**GAMMA-ORYZANOL %**

195

**VITAMIN E %**

35

**PHENOLIC ACIDS %**

25

**FLAVONOIDS %**

15

**ANTHOCYANINS %**

- Sarawak has more than one hundred varieties of rice locally grown whose nutritional values are largely unexplored.
- Part of a staple diet in most parts of the world, rice is also a provider of natural antioxidants.

This research has also led to better understanding on the distribution of nutrients in different rice, facilitating selection of ideal rice varieties as functional food. The outcome of the present study would be the basis for extensive research on cardioprotective effects of rice bran extracts in the near future. By developing novel and natural antioxidant-based therapies, it may offer therapeutic solutions for CVD and simultaneously improve agricultural crop values.