

# Phytochemicals and glycemic Index analyses of domestic rice cultivars

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## Abstract

*Oryza sativa*, Asian rice, feeds about a half population worldwide. Its seeds are a nutritious food source, especially its bran (aleurone layer). It possesses abundant phytochemicals, such as -oryzanol, tocopherols and tocotrienols. By breeding with interspecific hybridization of varieties Indica and Japonica were employed to obtain new cultivars; many had become representatives of High-Quality Rice in Taiwan. The bioactive ingredients vary in content with different degrees of milling conditions. It was conducted with a-10 second per milling for several lines or cultivars of the brown rice grain, until the brown surface turning to white (as the commercial polished rice). Averagely, four layers of the bran portion could be collected and the contents of these bioactive ingredients reached a peak in the second or the third layer. Additionally, embryos of the rice grain were also analyzed, which were divided into intact and ground categories. Results showed that approximately 3 to 4 folds of the concentrations of those in the ground embryos were detected compared to the intact form. Besides, 13 cultivars of brown and white rice samples were employed for the analysis of estimated glycemic index (EGI). Results showed that the brown and white rice of the TCS10 rice cultivar (both belonged to the low GI level in the human study) were low and medium GI food, respectively. All brown rice samples of the thirteen cultivars were evaluated as low GI rating.

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