

## Bioactive Compound Contents in Germinated Unpolished Purple Glutinous Rice from Kum Doi Saket and Kum Phayao Varieties

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### ABSTRACT

*This research studied the bioactive compounds in unpolished purple glutinous rice and germinated unpolished purple rice produced from two rice varieties: Kum Doi Saket and Kum Phayao. Unpolished purple glutinous rice grains were produced by grain dehusking without polishing. The quality of their physical, chemical and bioactive compounds was analyzed. Kum Doi Saket unpolished purple glutinous rice had a statistically significant ( $p < 0.05$ ) higher amount of almost all compositions than Kum Phayao, except ash and reducing sugar content. Germinated unpolished purple rice was produced by soaking in water at 40°C for 3 hrs, and then incubating at 35°C. The GABA content at 40 hrs of germination had the maximum amount in both varieties and tended to decrease after this time. Thus, 40 hrs of germination time was the optimum period for germinated rice from both rice varieties. When compared before and after the 40-hr germination period, gamma-oryzanol increased, but total anthocyanins and antioxidant activity decreased slightly. Comparing the two varieties of germinated unpolished purple glutinous rice grains, Kum Doi Saket had a statistically significant ( $p < 0.05$ ) higher amount of bioactive compounds and antioxidant activity than Kum Phayao. Germinated unpolished purple glutinous rice provided from Kum Doi Saket had  $16.31 \pm 0.34$  mg/100g of GABA,  $30.48 \pm 1.61$  mg/100g of gamma-oryzanol,  $70.10 \pm 0.45$  mg/100g of total anthocyanins and  $83.10 \pm 0.95\%$  of antioxidant activity. This study has shown that the glutinous purple rice variety Kum Doi Saket had the highest potential for future development as a health food.*

**Keywords:** Germinated rice, Purple rice, Gamma-aminobutyric acid, Gamma-oryzanol, Anthocyanins.

### INTRODUCTION

Unpolished rice grain has a greater amount of certain nutrients, such as fiber, minerals, vitamin B1, vitamin B2 and vitamin E, than does the normal polished grain. In addition, unpolished rice grain contains many bioactive compounds, such as anthocyanins and gamma-oryzanol (Kayahara, 2001). Recently, it was reported