

Gamma Oryzanol Content in Glutinous Purple Rice Landrace Varieties

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ABSTRACT

Our objective was to investigate whether purple glutinous rice synthesizes an agricultural nutrition distinguishable from white rice. The grains of ten purple rice landrace and two white rice varieties were examined for the amount of crude oil, semi-gamma oryzanol and gamma oryzanol (γ -oryzanol). Extractions were sampled from unpolished grains. Hexane and ethyl acetate were used as the solvents in extraction of crude oil yield. The amount of γ -oryzanol was analyzed in the HPLC. The results showed that the amounts of crude oil yield extracted from the unpolished rice grain varied from 2.19 to 2.91 g/100 g brown rice. With equal amounts of crude oil fed into the HPLC, the contents of semi purified γ -oryzanol were equal in both rice types, of purple rice (2.08 g/100g grain, on average) and of the white rice (1.99 g/100g grain, on average). In contrast, the contents of γ -oryzanol varied among varieties. The purple rice exhibited the higher content (55.58 mg/100g brown rice, on average) which was greater than the mean of the white rice check varieties (30.68 mg/100g brown rice). Genetic variation of γ -oryzanol apparently existed in the population of purple rice varieties as different contents were found. Among the purple rice, Kum Doi Saket and Kum Doi Musur yielded the greatest amount of γ -oryzanol (72.95, 70.16 mg/100 g brown rice, respectively). There was not any relationship between γ -oryzanol and crude oil content. This indicated that information on crude oil could not be applied as criteria in selection for γ -oryzanol in rice grains.

Key words: Gamma oryzanol, Purple rice

INTRODUCTION

Gamma oryzanol (γ -oryzanol) is a mixture of phytosteryl ferulates which occur in rice bran oil (Scavariello and Arellano, 1998) and function as natural antioxidants in the plants where they occur. Xu and Godber (1999) found that 24-methylene cycloartanyl ferulate, cycloartanyl ferulate, campesterol ferulate,