

Studies on the Angiotensin Converting Enzyme Inhibitory Activity and Bioactive Compounds of Germinated Brown Rice extra

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ABSTRACT

In this thesis, the Angiotensin Converting Enzyme (ACE) inhibitory activity and bioactive compounds in two kinds of rice in Taiwan, Taiwan Japonica 9 (TJ9) and Taichung Indica 10 (TCI10), were investigated. Brown rice seeds were selected and germinated under conditions, such as temperature 37 °C; a time period of 24, 48 and 72 hours; closed vessel; dark; soaked in water and glutamic acid solution. The ACE inhibitory activity was detected by UV/VIS method and RP-HPLC for bioactive compounds. The aim of the study is to detect ACE inhibitory activity and bioactive compounds of ungerminated and germinated brown rice. There are significant differences among the level of ACE inhibitory activity and bioactive compounds (γ-Oryzanol, α-Tocopherol, γ-Tocotrienol, and GABA) of various ungerminated and germinated brown rice soaking in different solutions of various time periods. The highest ACE inhibitory activity 87% TCI10 germination in water solvent with 15% ethanol extraction at the first day; TJ9 88% germination in glutamic acid solvent with water extract at the second days. High contents of GABA were found: 99.27 and 99.02 mg/100g (TCI10G3 and TJ9G3) germination in glutamic acid solvent. The γ-Oryzanol content of the samples was highest on the germination in water solvent, 67.6 and 71.02 mg/100g (TCI10W3 and TJ9W3). α-Tocopherol 0.76 and 0.89 mg/100g (TCI10W3 and TJ9W3) germination in water solvent. γ-Tocotrienol 0.41 and 0.44 mg/100g (TCI10G3 and TJ9G3) germination in glutamic acid solvent. According to the obtained results, we conclude that after germinating, nutrient content of brown rice increases, with higher ACE inhibitory activity and bioactive compounds content. The suggestion is that, beside white rice, germinated brown rice could be used as a health food in cooking everyday.

Keywords : ACE、TCI10、TJ9、γ-Oryzanol、GABA、α-Tocopherol、γ-Tocotrienol

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