

Title Contribution of free, soluble esterified and insoluble bound phenolic contents during storage of black and red pigmented rice

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Abstract

‘Khao Hom Nil’ (black rice) and ‘Khao Hom Mali’ (red rice) which had high nutritional values, harvested in 2007 were analysed to investigate the contribution of free soluble esterified and insoluble bound phenolics relative to total phenolic contents; and changes of these phenolics associated with storage. Black rice and red rice contained 16.42 and 15.29 $\mu\text{g FAE}/100 \text{ g DW}$ of free phenolics, 37.2 and 28.79 $\text{FAE } \mu\text{g}/100 \text{ g DW}$ of soluble esterified phenolics, 45.07 and 29.35 $\mu\text{g FAE}/100 \text{ g DW}$ of bound phenolics and 98.69 and 73.44 $\mu\text{g FAE}/100 \text{ g DW}$ of total phenolics, respectively. No significant difference was observed between contents of phenolics in black and red rice. Insoluble bound phenolics contributed the highest proportion to total phenolics and a similar trend was noted in a four month storage. Free phenolics increased in both black and red rice cultivars after the first month of storage, however, it sharply declined after two months of storage. Soluble esterified phenolics declined after the first month of storage and increased gradually after two months of storage. Bound phenolics and total phenolics gradually declined throughout the storage period.