

**Research Title:** Comparative accumulation of the total phenolics, total flavonoids and flavonoid derivatives content in various Thai rice varieties (*Oryza sativa* L. spp. *indica*)

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## ABSTRACT

In this research, the total phenolic compound and total flavonoid contents of seeds as well as the antioxidant capacities were determined in 15 Thai rice cultivars. Moreover, a high performance liquid chromatography method (HPLC) was modified for determination of 4 flavonoid subgroups (flavanone, flavones, flavonol and anthocyanin) in Thai rice seeds. A high yield of the total phenolic compound and total flavonoid contents was obtained by 99:1 methanol:HCl as the extraction solvent more than the other the extraction solvent. The results presented the total phenolic compound and total flavonoid contents of pigmented rice [Black Sticky rice (BS), Khum Pueag (KP), Khum Sakol (KS), Khum Khonkaen1 (KK1), Khum Khonkaen2 (KK2), Kulab Dang (KLD), Sang Yod (SY), TD49 and Khao Dang (KD)] higher than non-pigmented rice [Suphanburi1 (SP1), Suphamburi90 (SP90), Rice Department6 (RD6), Rice Department15 (RD15), Pathumthani1 (PT1) and Khao Dawk Mali 105 (KDML105) as well as the antioxidant capacities by ABTS and DPPH methods. The amounts of flavanone subgroups ranged from 0.04 to 0.40 mg Naringenin/g, flavones subgroup ranged from 0.08 to 0.57 mg Apigenin/g, flavonol subgroup ranged from 0.16 to 1.20 mg Quercetin/g and anthocyanin subgroup ranged from 44.43 to 69.83 mg Cyanidin chloride/g were found in pigmented rice. The total phenolic compound, total flavonoid contents of Thai rice seeds were significantly correlated with the antioxidant capacities. The results indicated that Thai pigmented rice appeared as a good source of phenolic and flavonoid compounds and had beneficial nutritive value or antioxidant substance.

**Keywords :** Rice, Phenolics, Flavonoids, Antioxidant capacities