Determination of antioxidant properties and total phenolic compound of various pigmented Thai rice varieties grown of Thailand

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Abstract: In this study, six types of pigmented Thai rice varieties rice grown in Northeastern region of Thailand including Hommali germinated brown rice, Hommali normal rice, Hommalidang brown rice, Homwarin brown rice and Insee brown rice were studied. These Thai rice varieties were extracted by hexane, ethyl acetate and methanol. The antioxidant activity using DPPH Radical Scavenging Activity and Ferric Reducing Antioxidant Power (FRAP) were investigated. Moreover, Folin-Ciocalteu colorimetric method was used to determine total phenolic compounds of rice crude extracted. The methanol crude extract of Hommali germinated brown rice and Insee brown rice show highest antioxidant activity obtained from DPPH Radical Scavenging Activity, Ferric Reducing Antioxidant Power (FRAP) and Folin-Ciocalteu colorimetric methods. For DPPH assay the antioxidant activity of Hommali germinated brown rice and Insee brown rice were 82.86±1.63% and 62.54±1.33%, respectively. For FRAP assay the antioxidant activity were 91.78±0.52 mg/g and 60.32±0.23 mg /g, respectively. For Folin-Ciocalteu colorimetric method the antioxidant activity were 104.31±0.85 mg and 75.06±0.61 mg, respectively. Based on the obtained results pigmented Thai rice varieties are excellent sources for health-promoting compounds.

Keywords: Antioxidant activity; DPPH assay; FRAP assay; Total phenolic compound