

## Effect of Electron Beam Irradiation on Natural Bioactive Compounds of Germinated Brown Thai Hom Mali Rice (*Oryza cultivata* L.)

Thai Hom Mali Brown Rice (*Oryza cultivata* L.) is rich complex and beneficial bioactive compounds. Several bioactive compounds are known to accumulate in brown rice during germination process. This study was to investigate the effect of electron beam irradiation for activation bioactive compounds of Germinated Brown Thai Hom Mali Rice, local rice cultivar from Sakon Nakhon province, Thailand. Electron beam setting at energy of 10 MeV; pulse repetition (RPF) at 8; the germinated brown rice samples were irradiated at 0 and 1.0 KGy with two sides of irradiation. After 15 days of irradiation, the samples were taken for evaluate gamma-aminobutyric acid content (GABA), gamma-oryzanol, total phenolic content (TPC), ferric reducing ability potentials (FRAP) and DPPH scavenging activities (DPPH), the color characteristics were also determined. Results showed GABA concentrations in non-irradiated and irradiated samples varied from  $5.93 \pm 0.25$  to  $7.52 \pm 3.59$  (mg/g of sample), these level was taken 1.27 fold in irradiated samples increasing than in non-irradiated samples. Colors characteristics showed results of decreasing in whiteness of Hunter L value and increasing in redness of Hunter a value in irradiated samples when compare to non-irradiated samples. Electron beam irradiation were not affected on TPC, FRAP, DPPH activity. This indicated that electron beam irradiation is an effective method for improving bioactive activity of Thai Hom Mali germinated brown rice, however the studies of effect of electron beam irradiation for preserving shelf life of Thai Hom Mali germinated brown rice would be investigated in prolonged studies in the further study.

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