IN VITRO ANTIOXIDANT ACTIVITY OF BLACK RICE EXTRACT IN LOW-DENSITY LIPOPROTEIN (LDL) HUMAN PLASMA

Yuliana-Reni Swasti[1, *], Mary Astuti[2], Umar Santoso[2]

Food Technology and Agricultural Product Division, Faculty of Agricultural Technology, Gadjah Mada University, Indonesia

Black Rice has long been consumed in Japan and China and is considered to be a healthy food because of its antioxidant content that able to prevent oxidative stress. Oxidative modification of low-density lipoprotein (LDL) may play an important role in the development of atherosclerosis. The aim of this research is to examine antioxidant activity of black rice extract variety *Melik Java* to inhibit LDL oxidation.

Hulled black rice (HB) and partially milled black rice (PMB) were sorted and powdered to pass 30 mesh sieve. Fat content was removed by percolation with hexane. Phenolic and anthocyanins in defatted black rice were extracted using methanol-HCl 1% (10:1) for 24 hours in dark room at 4^0C. The determination of phenolic content was carried out by *Folin-Ciocalteu* method and anthocyanins content by pH differential method. The antioxidant activity was evaluated by radical DPPH methods and inhibition oxidation human LDL plasma. Rutin was used as a reference antioxidant.

The results shows that phenolic content in HB and PMB extracts were 556 $\pm$ 10 mg GAE/100g (db) and 535 $\pm$ 10 mg GAE/ 100g (db) respectively and anthocyanins content were 152 $\pm$ 16 mg/100g (db)m and 149 $\pm$ 11 mg/100g (db) respectively. The radical DPPH scavenging activity of 100 ppm rutin, 100 ppm HB and 100 ppm PMB were 57.89%, 80.16%, and 77.25% respectively. Inhibition LDL oxidation of 60 ppm rutin, 60 ppm HB and 60 ppm PMB were 48.53%, 52.31% and 48.10% respectively. The results above shows that methanol-HCl 1%-black rice extract has more potential antioxidant activity in compared with rutin.

Keywords : black rice, phenolic, anthocyanins, antioxidant, LDL