

Indonesia are still facing the hidden hunger problems which are condition with micronutrient deficiencies. One of the major factor are dependency of white rice diet. This proposed project are trying to overcome the problem by promoting underutilized staple foods as substitute of white rice. This research will explore the micronutrient content (Iron, Zinc, and Carotenoid), bioactive compound (phenolic and anthocyanin) of Indonesian underutilized staple foods (three varieties of black rice, red rice, purple sweet potato, and orange fleshed sweetpotato). Identification of individual carotenoid and anthocyanin compound will be carried out. This research will also examined the antioxidant activity of the samples extract with several methods (DPPH, ABTS, FRAP, and inhibition of LDL oxidation).

Research will be done on the raw materials and also in the form of food products. Therefore this research also determine the effect of different processing methods on the parameters stated previously.

After completion of laboratory work, based on the results of laboratory work, study on bioavailability of iron, zinc, and carotenoid on human subject will be carried out. This research will examine effect of diets of colored rice and sweetpotato consumption on bioavailability of iron and carotenoid with 30 subject divided to 3 group, which are control, otimum diet scenario (colored rice+sweetpotato) and suboptimum diet scenario (colored rice+ sweetpotato). The treatment will be for three weeks. Every week blood will be drawn from the subject. The iron status will be measured as hemoglobin, hematocrit, and serum ferritin status, and the carotenoid will be measured using HPLC