ABSTRACT

ASIA MUFLIHAH. Calcium and Iron In Vitro Bioavailability of Arrowroot Starch Cookies (Maranta arundinaceae L) by Adding Torbangun (Coleus amboinicus Lour) in Variety of Beverages. Under Direction of RIZAL DAMANIK.

Mineral deficiencies, such as calcium and iron, remain a major problem in many developing countries including Indonesia. Arrowroot starch cookies with torbangun flour addition (namely PGT cookies) is one of innovative product which developed as one of micronutrient source. PGT cookies contain 527 Cal, calcium 405.18 mg/100g and iron 3.76 mg/100g. PGT Cookies as snack are commonly consumed with drinks, such as tea, portable water, coffee and milk. Nutrient and non-nutrient content of food which is consumed together can interact one another and possibly influence nutrient bioavailability. This research aimed to identify calcium and iron in vitro bioavailability of PGT cookies and beverage mixture. Calcium bioavailability lies between 0.76 – 11.46%. Iron bioavailability lies between 0.92 – 5.95%. One way ANOVA test shown that types of mixture significantly affect the calcium and iron bioavailability (p<0.05). Based on Pearson correlation test result, protein have positive (+0.644) and significant (p<0.01) affection to calcium bioavailability. Furthermore, total iron have negative (-0.743) and significant (p<0.01) affection to iron bioavailability. Mixture of PGT cookies and milk have highest calcium (41.77 mg/100g) and iron (0.153 mg/100g) available. In conclusion, torbangun adding in cookies and consumption together with milk increase calcium and iron available.

Keyword : bioavailability, calcium, iron, cookies, arrowroot, starch, torbangun, potable water, milk, tea, coffee