ID 2845

243

ABSORPTION OF QUERCETIN FROM RED WINE.

JHM de Vries[1], PCH Hollman[2], MR Olthof[1], MB Katan[1], Division of Human Nutrition and Epidemiology, Wageningen Agricultural University, The Netherlands[1], DLO-State Institute for Quality Control of Agricultural Products (RIKILT-DLO), Wageningen, The Netherlands[2].

Red wine is thought to be an important source of polyphenolic antioxidants, including the flavonol quercetin. Therefore, consumption of quercetin from wine might prevent LDL oxidation and atherosclerosis. However, it is unknown to what extent quercetin from wine is absorbed in man. To determine this, we studied the time course of the concentrations of quercetin in plasma and its excretion in urine in 4 male subjects after they had consumed red wine. First the subjects followed a diet low in quercetin for 7 days. On day 7 they came to the hospital and gave a baseline blood sample. Subsequently they consumed a low-quercetin breakfast plus four 150 ml glasses of red wine, taken at 15 minutes intervals. The four glasses of wine (Chateau Latour St Bonnet 1993) provided 12 mg of quercetin. The subjects gave another eight blood samples at 0.5, 1, 2, 3, 6, 12, 24.5 and 32.5 hours after they had started consumption of the wine. In addition, they sampled urine for 24 hours. We found an average baseline value for plasma quercetin of 3 ± 1 μg/L (±SD). Peak levels in plasma of 13.8 ± 4.3 μg/L were reached 0.9 hrs after wine consumption had been started. Quercetin was eliminated with a half-life of 22 hrs from the body. The amount of quercetin excreted in urine was 93 ± 13 μg/24 hrs which is 0.8 ± 0.1% relative to the amount consumed. Thus, quercetin from red wine is absorbed, and is eliminated slowly from the body throughout the day. However, levels of quercetin in plasma and urine were lower than those found after the same intake of quercetin from onions in a previous study. Therefore, red wine is probably not a better source of bioavailable quercetin than other quercetin-rich foods in the diet.

244

IRON AVAILABILITY FROM FILIPINO MEALS.

TP Trinidad, DH Valdez, AC Mallillin, Nutrient Availability Section, Nutritional Biochemistry Division, Food and Nutrition Research Institute, Department of Science and Technology, Bicutan, Tagig, Metro Manila, Philippines.

Iron availability was studied in 72 meals represented by the 13 regions of the Philippines using in vitro and in vivo methods. A usual Filipino meal consists of rice, fish, meat or poultry and vegetables, cooked in different ways in the different regions of the Philippines, and commonly consumed as breakfast, lunch and dinner. Iron availability from breakfast meals (4.8 ± 0.4%) was significantly lower than lunch (6.8 ± 0.4%) and dinner (6.7 ± 0.7%) ($P<0.05$). The low iron availability from breakfast meals may be attributed to the composition of the meal. It is well established that the presence of iron enhancers, e.g. meat, fish or poultry (MFP) and ascorbic acid (AA), and iron inhibitors, e.g. phytic acid (PA) and tannic acid (TA), affects iron availability in a meal. It was observed that breakfast meals have significantly lower MFP and AA (19.5 ± 4.8 g and 9.2 ± 4.4 mg, respectively) in comparison to lunch (47.3 ± 3.6 g and 36.8 ± 8.9 mg) and dinner (42.2 ± 5.4 g and 40.2 ± 10.3 mg) ($P<0.05$). However, PA was significantly lower from breakfast meals (137.2 ± 22.5 mg) in comparison to lunch (230 ± 8.8 mg) and dinner (230.6 ± 8.7 mg) while TA did not differ significantly between meals ($P<0.05$). Overall, iron availability from a usual one-day meal was 6.4 ± 0.5%. Attempts were made to improve the meals to meet the recommended dietary allowances for iron and energy among Filipinos. There was no significant increase on iron availability observed from the improved breakfast, lunch and dinner as well as from the one-day meal. This result may be due to a significant increase in PA and TA from the improved one-day meal (979.6 ± 240.7 mg and 1585.9 ± 258.7 mg, respectively) in comparison to the usual one-day meal (639.4 ± 29.7 mg and