Concurrent Session 7A: Micronutrients, Cereals and Milk

Effect of extrusion conditions on lycopene content and product quality of tomato skin enriched extruded food products

Z Dehghan-Shoar, G Meerdink, CS Brennan
Institute of Food, Nutrition and Human Health, Massey University, Palmerston North, New Zealand

Background – Extruded cereal-based snacks are widely used convenience foods; however, these products are low in all nutritional attributes except energy. Therefore, they are good targets for enrichment. Tomato skin, a major tomato processing waste is a cheap source for nutrients particularly lycopene. Lycopene has a potent antioxidant activity and is considered to reduce the risk of cancer. The development of Tomato skin Enriched Extruded Food products produces novel foods that will provide energy while incorporating essential nutrients such as lycopene.
Objectives – To evaluate the effect of extrusion on lycopene content and characteristics of tomato peel enriched snacks.
Design – Tomato skin was added to a rice flour breakfast cereal base at a level of 30% (w/w). Extruded breakfast cereals were made from the base preparation under different extrusion conditions. Lycopene content, expansion ratio, colour, density and chemical composition in raw material and extruded snacks were determined.
Outcomes – Extrusion parameters especially water rate affected lycopene content significantly (up to 4-folds). Expansion had a negative correlation with lycopene content.
Conclusions – Water rate has the most significant effect on lycopene retention. Lycopene is partially maintained after extrusion. Modifying processing parameters will increase lycopene content and product quality.

Iron status and meat eating behaviour of female tertiary students at a rural university

SI Robertson [1,2,3], M Guppy [1,2,4], R Hussain[2,3] , J Watt [1,2,4] , P Kennedy [1], T Alcorn [1], E Vidal [1], G Woodward [4], W Wielebinski [5], N Horton [5], F Utley [3], K Fisher [2,3]
[1] Medical Centre, [2]School of Rural Medicine, and [3] School of Health, University of New England NSW 2351, [4]UDRH University of Newcastle NSW 2350, [5]Pathology New England NSW 2350

Background – Iron deficiency can be related to a decrease in physical and mental health. Its manifestations can include impaired exercise capacity, immune function, and cognitive capacity. However, many students attending the University of New England Medical Centre (UNE MC) believed that they could be healthier by simply removing meat from their diet. The only other Australian studies of iron status of university students have been conducted at urban universities. This rural university pilot project has been funded by Meat and Livestock Australia.
Objectives – To determine the proportion of female students attending UNE MC who have risk factors for iron deficiency on the basis of their responses to a questionnaire, and to determine the prevalence of iron deficiency among those students who agreed to have blood studies.
Design – Students who attended the UNE MC were asked if they would like to participate in our Iron Project. The completed Diet Questionnaire was reviewed by the doctor for 4 risk indicators: Red meat eaten twice or less a week, heavy menstrual loss, previous history or self assessment of iron deficiency. If any risk factor was present, a blood count, iron studies, and a BMI were performed.
Outcomes – 358 valid questionnaires were completed over 12 months. Mean student age was 20.3 years. 60% lived in college residences on campus. 51% were low or non meat eating (8% did not eat red meat.~40% ate red meat twice a week or less). The prevalence of iron deficiency was 11.9%. 75% cared very much about being healthy.
Conclusions – The eating behaviour of students in transition from school and home to university living is an opportunity for health promotion. Risk factors for iron deficiency and their correlation with iron levels require further research.