ICCN Poster Presentations

Nutrition and economics

The nutritional status of pregnant women in the Vaal Triangle, Gauteng, South Africa

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Background: A study completed in 2001 formed part of a clinical intervention trial under controlled conditions to examine the iron status of the pregnant and lactating women in the Vaal Triangle. The main purpose of that study was to determine the dietary intake and iron status of the sample population (n=431). Based on that study there is convincing evidence of poor dietary practices by pregnant women. According to Ramachandran (2002) low dietary intake in pregnancy will have adverse effects on the health and nutrition status of both the mother and her offspring. According to Norton (2002) there is strong epidemiological evidence of an association between maternal weight gain during pregnancy and low birth weight (LBW), especially in undernourished women.
Aims: The main purpose of this study is to develop a cost effective, nutrient-dense food multimix for pregnant women in order to improve their nutritional status during pregnancy and to have healthier pregnancy outcomes.
Methodology: According to the study by H.Kesa (2001) and Norton (2002) validated QFFQ's was used and statistically analysed. Trained fieldworkers conducted interviews with the help of food models to estimate portion size.
Results: According to the study by H.Kesa (2001) the top ten items most often consumed by pregnant women were, in descending order: fresh milk, tea, coffee, cold drink, maize meal, fruit juice, bread rolls, magou (a fermented non-alcoholic drink), rice and sugar. Daily intakes (mean ± SD) for pregnant women were: 8425.71 ± 2279 kJ, 73.18 ± 23 g protein, 62.29 ± 23.7 g fat, 292.45 ± 72.2 g carbohydrate, 9.74 ± 3.8 mg iron. According to the blood samples 50% of pregnant women IDA. According to Norton (2002) majority of women with LBW babies are from developing countries where women begin pregnancy in a nutritionally disadvantaged state.
Conclusions: Based on the results of the previous study, it is clear that food insecurity and malnutrition are evident in pregnant women in the Vaal Traingle.
Implications: The development of a multimix will attempt to examine a cost- effective means to medium and long-term sustainable food based solutions to food and nutrition security of low-income, pregnant women in the Vaal Triangle in order to prevent malnutrition during pregnancy.

A rapid chromatography procedure for the isolation of lactoperoxidase from acid whey

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Introduction: Lactoperoxidase (LPO, EC 1.11.1.7) is a major cationic enzyme which is found in bovine milk. It was isolated from bovine milk acid whey by a simple and rapid purification procedure. The number of chromatography steps required by the previous procedures led us to examine the use of a cation – exchanger resin, phospho cellulose in the isolation of lactoperoxidase from bovine milk acid whey. Recently, the interest in the industrial purification process has increased considerably because the lactoperoxidase system can be used as a biopreservative in many food and dairy products.
Metholds: Batchwise chromatography on a cation – exchange, phosphocellulose was carried out for isolation of lactoperoxidase from bovine milk acid whey suing 50 mM phosphate buffer(pH7) and a linear gradient of NaCl from O 0.4M. The enzyme was eluted in buffer solution containing 0.4 M NaCl. The elute solution was the pellet obtained by centrifugation for 15 min at 12000g, was dissolved in the same phosphate buffer. The isolated enzyme then dialysed overnight against 100 vol of the above buffer.
Results: the enzyme was purified 800 fold to a purity index (A 412 nm/A 280 nm) of at least 0.7 with a yield of 58% At end , 26 ml solution of enzyme was obtained from 2800ml of acid whey with specific activity of 32 U/ mg protein.
Discussion: Althoug the purity index of the purified enzyme by the above method is less than of previous procedures, but the procedure described in this paper is rapid and is easily adapted to large quantities of bovine acid whey with a good yield.
Key Word: lactoperoxidase, chromatography, whey.