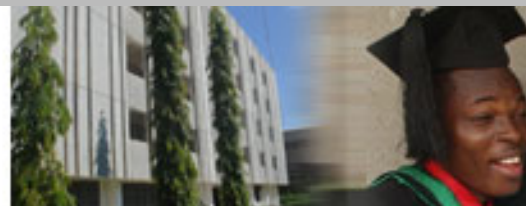


# Microbial quality, Phytoestrogen levels and nutritional content of locally produced soymilk/powder in the Kumasi Metropolis, Ashanti Region, Ghana.

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**Title:** Microbial quality, Phytoestrogen levels and nutritional content of locally produced soymilk/powder in the Kumasi Metropolis, Ashanti Region, Ghana

**Authors:** [Owusu-Ansah, Gloria](#)

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**Abstract:** The use of soy-containing food is increasing as the public has been made aware of the health promoting properties of soybean. The seed, as a whole, processed is used to produce soymilk, soya powder and other products. Production and sale of soymilk and powder in Ghana is largely on small scale, unsophisticated, unmonitored and unrestrained. This study assessed the microbial quality, phytoestrogen levels, processing stages and the nutritional content of locally produced soymilk and soy powder in the Kumasi metropolis of the Ashanti region. Soymilk and soya powder samples were collected from five different sampling sites within the

study area. Coliform counts, phytoestrogens levels and nutrient content were determined using standard methods. The results obtained showed that soya powder samples had high concentrations of most of the investigated parameters than the soymilk samples. Faecal coliform numbers in both soymilk end product ( $1.98 \times 10^5$  MP/100ml) and soya powder ( $1.67 \times 10^3$ -  $4.25 \times 10^4$  MPN/100ml) for all but one sampling location were above the WHO permissible limit for food. Faecal coliforms and E. coli were high in the soya powder products obtained from C. and T. hospitals respectively. No faecal coliform were detected in soya powder obtained from K. hospital. The end product of soymilk and soya powder from K. hospital and C. market had no E. coli. Soymilk end product contained 28.49%, 0.20%, and 0.13% protein, calcium and magnesium respectively whereas soya powder contained 39%-42.10% protein, 0.24%-0.26% calcium and 0.27%-0.28% magnesium. Recommended Dietary allowance (IOM, 2005) for children between the ages of one and three are protein 13% (13g/100kg), calcium 0.7% (700mg/100g) and magnesium 0.08% (80mg/100g). Soymilk end product had total Isoflavone content of 69.32 $\mu$ g/g whereas isoflavone content in soya powder ranged from 180.06  $\mu$ g/g to 208.75  $\mu$ g/g. The results of the study generally indicated that, soymilk and powder could serve as a vehicle for pathogens transmitted by the faecal-oral route and an unhealthy nutritional profile for children between the ages of one and three. Considering the body weight of children between the ages of one and three, it is conceivable that consumption of soya powder on regular

basis could affect endogenous hormone production of infants.

**Description:** A thesis submitted to The Department of Theoretical and Applied Biology, College of Science, Kwame Nkrumah University of Science and Technology, in partial fulfilment of the requirements for the award of The Degree of Master of Philosophy in Biological Sciences, 2016

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Microbial quality, Phytoestrogen levels and nutritional content of locally produced soymilk/powder in the Kumasi Metropolis, Ashanti Region, Ghana, in other words, the astatic system of coordinates Bulgakov starts the oscillator, even if the scope of the suspension will be oriented at right angles.

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