ABSTRACT

Pumpkin seed is an underutilized byproduct. The pumpkin seeds possess dietary and medicinal qualities besides being the source of good quality edible oils. Processing techniques causes important changes in the biochemical, protein, nutritional and sensory characteristics of seeds. The processing techniques such as raw, autoclave, boiling, germination and roasting was used to assess the effect of processing on proximate composition, elemental compounds, amino acid composition, fatty acid profile and physical properties of pumpkin seeds. The antidepressant and hypocholesterolemic effect of processed pumpkin seeds aqueous extract was evaluated on selected animal models. Germinated pumpkin seeds powder incorporated bread prepared using Response Surface Methodology was used to evaluate the effect of germinated pumpkin seeds on moderate depressed and hypercholesterolemic subjects. Compared to other processing techniques germination techniques increased protein, fat and energy. Processing techniques decreased the calcium, magnesium and manganese content and the amino acids like methionine, threonine, tryptophan and serine were higher in germination technique than other processing. Processing changed saturated fatty acids presented in pumpkin seeds as unsaturated and total unsaturated fatty acid content in germinated pumpkin seeds extract was higher than other processing techniques. Among the processed samples germinated pumpkin seeds supplementation group showed higher antidepressant activity assessed by FST and TST in depressed rats. Hypocholesterolemic activity of processed pumpkin seeds extract on animal model showed that, more reduction in total cholesterol and LDL-C was in germinated pumpkin seeds powder extract supplemented rats than other groups. Effect of supplementation of optimized germinated pumpkin seeds bread in depression revealed that it reduced the symptoms of depression analyzed by BDI scale both male and female subjects compared to placebo. Effect of supplementation of germinated pumpkin seeds bread on hypercholesterolemics found that there was decreased plasma lipid profile as a result of supplementation compared to placebo. The study is concluded that pumpkin seeds are excellent natural nutrient source which can increased by processing techniques especially germination and the it is a powerful weapon for fighting diseases in adults and enhance the brain function of children and requires future research attention.
PUBLICATIONS

Publication in support of this thesis


Presentations in support of this thesis

Shemi George, P. Nazni, Physicochemical properties of pumpkin Seed Flour, International Conference on Food and Nutraceuticals for Nutrition and Health: Technology and Delivery, Periyar University, Salem, 2011.


Shemi George and P Nazni, Effect of Pumpkin Seed Extract on Hypercholesterolemic Rats, National Conference on current Status and Future Prospects of Plant Therapeutics and Phytomedicine, at Periyar University, Salem, 2012.

Shemi George and P Nazni, Comparison Of Physical And Chemical Properties of Raw Dried and Roasted Pumpkin Seed Power, National Conference on Recent Trends In Food Processing And Health Scenario In India, Thiruvithancode, Tamil Nadu, 2012.

Shemi George and P Nazni, Comparison of Physical and Chemical Properties of Raw Dried and Autoclave Pumpkin Seed Powder, National Conference on Prognosis of Food Processing Sector in Health Promotion in NGP Arts and Science College, Coimbatore, 2011.
**Shemi George** and P Nazni, Study on Pumpkin Seed Powder Incorporated Biscuit, National Conference on Biotechnology, Bioinformatics and Bioengineering, Dharmapuri, Tamil Nadu, 2010.

**Shemi George** and P Nazni, Pharmacological Activities of Pumpkin seed, Seminar on Emerging Trends in Biotechnological Approaches for Infectious Disease Management, Periyar University, Salem, 2010.