World Academy of Science, Engineering and Technology
International Journal of Nutrition and Food Engineering
Vol:9, No:07, 2015

Evaluation of Antioxidant Activity and Total Phenolic Content of Lens Esculenta Moench, Seeds

Authors : Vivek Kumar Gupta, Kripi Vohra, Monika Gupta

Abstract : Pulses have been a vital ingredient of the balanced human diet in India. Lentil (Lens culinaris Medikus or Lens esculenta Moench.) is a common legume known since biblical times. Lentil seeds, with or without hulls, are cooked as dhal and this has been the main dish for millennia in the South Asian region. Oxidative stress can damage lipids, proteins, enzymes, carbohydrates and DNA in cells and tissues, resulting in membrane damage, fragmentation or random cross linking of molecules like DNA, enzymes and structural proteins and even lead to cell death induced by DNA fragmentation and lipid peroxidation. These consequences of oxidative stress construct the molecular basis in the development of cancer, neurodegenerative disorders, cardiovascular diseases, diabetes and autoimmune. The aim of the present work is to assess the antioxidant potential of the peteroleum ether, acetone, methanol and water extract of the Lens esculenta seeds. In vitro antioxidant assessment of the extracts was carried out using 1,1-diphenyl-2-picryl hydrazyl (DPPH) radical scavenging activity, hydroxyl radical scavenging activity, reducing power assay. The quantitative estimation of total phenolic content, total flavonoid content in extracts and in plant material, total saponin content, total alkaloid content, crude fibre content, total volatile content, fat content and mucilage content in drug material was also carried out. Though all the extracts exhibited dose dependent reducing power activity the acetone extract was found to possess significant hydrogen donating ability in DPPH (45.83%-93.13%) and hydroxyl radical scavenging system (28.7%-46.41%) than the peteroleum ether, methanol and water extracts. Total phenolic content in the acetone and methanol extract was found to be 608 and 188 mg gallic acid equivalent of phenol/g of sample respectively. Total flavonoid content of acetone and methanol extract was found to be 128 and 30.6 mg quercetin equivalent/g of sample respectively. It is evident that acetone extract of Lentil seeds possess high levels of polyphenolics and flavonoids that could be utilized as antioxidants and neutraceuticals.

Keywords : antioxidant, flavanoids, Lens esculenta, polyphenols
Conference Title : ICNFS 2015 : International Conference on Nutrition and Food Sciences
Conference Location : Zurich, Switzerland
Conference Dates : July 29-30, 2015