

ASSESSMENT OF *IN-VITRO* ANTIOXIDANT CAPACITY AND POLYPHENOLIC COMPOSITION OF FREQUENTLY USED LEGUMES

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Abstract

This study was concerned with the assessment of antioxidant activity and chemical composition of extracts made from nine legume seeds. The legume seeds include : *Lablab purpureus* (Lab-lab bean), *Phaseolus vulgaris* (Kidney bean), *Vigna radiata* (Mung bean, green seed coat variety), *Cicer arietinum* (Chick pea, dark brown seed coat variety), *Vigna radiata* (Mung bean, red seed coat variety), *Vigna unguiculata* (Cowpea, Black eyed bean), *Cicer arietinum* (Chick pea, white seed coat variety), *Trigonella foenumgraecum* (Fenugreek), and *Phaseolus vulgaris* (Black bean). Two methods were used to evaluate antioxidant activity of ethanol extracts of these selected plants: β -carotene bleaching assay and 1,1-diphenyl-2-picrylhydrazyl radical method (DPPH). DPPH was also used as a TLC spray to detect separated antioxidant compounds. Ethanol extracts of the five legume seeds showed antioxidant activity with chick pea (*Cicer arietinum*) exhibiting the highest activity (Fernandez et al., 2009). Germination did not increase antioxidant activity as measured by the β -carotene method, in five legumes. However, TLC bioautography clearly indicated that at least four compounds with radical scavenging activity have been biosynthesized during the germination of chick pea seeds. The biosynthesized compounds were more polar compared to those present in ungerminated seeds. This broadens the solubility spectrum of chickpea antioxidants, an advantage for the food industry (Milos and Makhota, 2012). The potential of commercially using legume flours in processed baked and meat products are indicated, adding antioxidant activity to other functionalities. Synergistic studies showed that the antioxidant activity of chick pea could be synergistically increased by addition of the extract of roots of *G. gynandra* (Chew et al., 2009) The AICI₃-method was found to be unsuitable for the determination of total flavonoids.

Keywords: Antioxidants; Legumes; Chickpea; Nutraceutical; *G. gynandra*