



## PHYTOCHEMICAL SCREENING AND ANTIOXIDANT ACTIVITY OF CUCURBITA PEPO LEAVES

Kalaiselvi K.\*<sup>1</sup> and Selvi S.<sup>2</sup>

<sup>1</sup>Assistant Professor, Department of Biochemistry, Vivekanandha College of Arts and Science for Women, Thiruchengode, Namakkal District, Tamil Nadu, India.

<sup>2</sup>Department of Biochemistry, Vivekanandha College of Arts and Science for Women, Thiruchengode, Namakkal District, Tamil Nadu, India.

**\*Corresponding Author: Kalaiselvi K.**

Assistant Professor, Department of Biochemistry, Vivekanandha College of Arts and Science for Women, Thiruchengode, Namakkal District, Tamil Nadu, India.

Article Received on 26/03/2016

Article Revised on 16/04/2016

Article Accepted on 06/05/2016

### ABSTRACT

The extract of leaves of the plant (cucurbita pepo L) was also subject to general chemical test of different types of constituent such as Carbohydrates, Glycosides, Protein and amino acids, Flavonoids, Alkaloids, Phytosterols, Tannins, Phenolic and Steroids, Fixed oils and Fat, Gums Mucilage's in water, petroleum ether, ethanol, methanol solvent extracts. Phytochemical analysis of the plant has shown the presence of proteins, oil and fats, phenolic compounds, flavonoids, saponins, tannins and carbohydrates are mostly present in methanol extract. Antioxidant activity was performed using DNPH and Total antioxidant assays. The extract has shown highest DNPH activity of (9711.54ug/g) total antioxidant capacity. Therefore the present study this throws a light to the major active components as well as the biological activities of the Cucurbita Pepo.L that may be considered as important source from the pharmacological point of view.

**KEYWORDS:** Cucurbita Pepo.L, Phytochemical, DNPH total antioxidant activity.

### INTRODUCTION

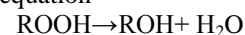
The medicinal plants that possess therapeutic properties or beneficial pharmacological effect on the animal body generally designated as MEDICINAL PLANTS. It has now been established that the plant which naturally synthesis and accumulate some secondary metabolites like alkaloids, glycosides, tannins, volatile, oils and contains minerals and vitamins are possess medicinal properties. India has one of the richest plant medicinal traditions in the world. There are estimated to be around 25,000 effective plant based formulations used in folk medicine and know to rural communities in India. Natural materials have been identified for combating human ailment during the thousands of years of early human existence ayurveda, siddha and herbal medicines are the oldest and most used form of medicine in the earth. Plants have been the most important for human health. Many modern medicines are derived from plant either extracted from plant themselves or artificially synthesized to copy plant chemical compounds. World health organization (WHO) estimate that 80% of the world population relies on plants for their primary health care. India is the birth place of traditional uses of plant derived medicine as "Ayurveda".

The various bioactive chemical compounds found in plants, as antioxidants, considered to be beneficial to

human health. Phytochemical are chemical and bioactive compounds that occur naturally in plants. Some are responsible for color and other organoleptic properties. Phytochemicals may have biological significance for carotenoids, flavonoids, but are not established as essential nutrients. There may be as many as 4000 different phytochemicals. Some phytochemical with physiological properties may be elements rather than complex organic molecule.

Reactive oxygen species (ROS) have been a source of the threat in food systems decreasing the self stability and in biological systems in causing chronic diseases. Current research is now directed towards finding naturally occurring antioxidants from plant origin. In the recent advancement in of chromatographic and spectral fingerprints plays an important role in the quality control of complex herbal medicines.

Most biological preventive antioxidants are also peroxide decomposers certain enzymes such as glutathione peroxidase can reduce H<sub>2</sub>O<sub>2</sub> to H<sub>2</sub>O and also lipid hypoperoxidases to the corresponding alcohol as shown in the following equation



Commercial chain breaking antioxidants are generally phenols or aromatic amines. They owe their antioxidant activity to their ability to trap peroxy radicals as shown in equation.



Antioxidants can also be manufactured synthetically. These belong to the class of synthetic antioxidants.

There is a growing interest in antioxidants research because of their high capacity in scavenging free radicals with particular focus in natural antioxidants found in medicinal and dietary plants. These natural antioxidants not only protect dietary lipids from oxidation, but may also provide health benefits associated with preventing damages to biological molecules.

### Cucurbita pepo.L



Species: cucurbita pepo

Binomical name: cucurbita pepo L

Family: cucurbitaceae

Genus: cucurbita

Kingdom: plantae

Order: cucurbitales

Sub species: pepo

Common name: pumpkin, filed pumpkin

### MATERIALS AND METHODS

#### Collection of plant materials

The fresh leaves of **Cucurbita pepo L** were collected in area free of pesticides and other contaminants from the area Namakkal.

#### Extraction of plant materials

The plant materials (leaves of **Cucurbita pepo L**.) were air-dried at room temperature 25°C for 5days, after which they were grinded to a uniform powder. The petroleum ether, ethanol, methanol, extracts were obtained by macerating the powdered samples 50 g of each of the dry powdered plant materials in 350ml of 70% aqueous petroleum ether, ethanol, methanol. The extracts were concentrated using a rotary evaporator under vacuum with the water bath set at 45°C.

### RESULTS AND DISCUSSION

#### Qualitative phytochemical analysis

The extract of leaves of the plant (cucurbita pepo L) was also subject to general chemical test of different types of constituent such as Carbohydrates, Glycosides, Protein and amino acids, Flavonoids, Alkaloids, Phytosterols, Tannins, Phenolic and Steroids, Fixed oils and Fat, Gums Mucilage's in different solvent extract.

#### Qualitative examination of dried plant leaves in various solvent extract

TESTS	WATER	METHANOL	ETHANOL	PETROLEUM ETHER
Carbohydrate	+	+	+	+
Glycosides	-	-	-	-
Proteins and amino acids	+	+	+	+
Fixed oils and fat	+	+	+	+
Gums and mucilage's	-	+	+	-
Alkaloids	+	+	+	-
Flavonoids	+	+	+	+
Phytosterols	+	+	+	+
Tannins	-	-	+	-
Saponins	-	+	+	-
Steroids	-	+	+	+

'+' = indicates presence of phytochemicals; '-' = indicates absence of phytochemicals;

#### TOTAL ANTIOXIDANT ACTIVITY

S. No	Parameters	Cucurbita Pepo.L
1	Total Antioxidant Activity ( µg/g)	9711.54

#### REFERENCE

- Adam Matkowski\*, Patrycja Tasarz and Emilia Szypuła (2008) Antioxidant activity of herb extracts from five medicinal plants from Lamiaceae, subfamily Lamioideae Journal of Medicinal Plants Research, November, 2008; 2(11): 321-330. ISSN 1996-0875.
- A. Grigore, Ina Paraschiv, S. Colceru-Mihul, C. Bubueanu, E. Draghici, M. Ichim. Chemical composition and antioxidant activity of Thymus

- vulgaris L. volatile oil obtained by two different methods. 2010; 15(4).
3. Aneta Wojdylo, Jan Oszmianski, Renata Czemerys. Antioxidant activity and phenolic compounds in 32 selected herbs Food Chemistry, 2007; 105: 940–949.
  4. AT Tchinda1, GA Agbor, DE Tsala, AJG Yaya, EN Nga, E Talla, J-N Wauters, M Frédéricich Antioxidant Activity of Flavonoids Isolated From the Fruits of *Xylopi*a parviflora (A. Rich.) Benth International Journal of Research in Pharmaceutical sciences and Research, 6(4): 323-328. ISSN: 0975-248X.
  5. Azra Kamal. Pytochemical screening of syzygium cumini seeds, 2014. ISSN: 2319-3824.
  6. Bajpai M, Pande A, Tewari SK and Prakash D. Phenolic contents and antioxidant activity of some food and medicinal plants. International Journal of Food Sciences and Nutrition, 2005; 56(4): 287-291.
  7. Duduku Krishnaiah, Rosalam Sarbatly and Awang Bono. Phytochemical antioxidants for health and medicine – A move towards nature Biotechnology and Molecular Biology Review, 2007; 1(4): 097-104. ISSN 1538-2273.
  8. George B, Kaur C, Khurdiya D S, Kapoor H C. Antioxidants in tomato (*Lycopersium esculentum*) as a function of genotype. Food Chemistry, 2004; 84: 45–51.
  9. Mohammad, Traiqu, Al-Yahya, M.A-AL-Meshal, Phytochemical and biological screening of Saudi medicinal plant, a study on Saudi plant of family compositae, 2009.