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Antioxidant Effect of *Daucus carota*.

A Aswin Kumar*, Sankara Narayanan B, Sandiya Ravi, and A Abi Selvi.

Sree Balaji Medical College & Hospital No. 7, Works Road, Chromepet, Chennai, Tamil Nadu 600044, India.

ABSTRACT

In recent years there has been an increased interest in the development of "Natural Antioxidants". Antioxidants protect the human body against free radicals that may cause pathological effects such as ischemia, asthma, anaemia, inflammation, neuro-degeneration, and parkinsons diseases. There are proven results that plant products such as flavonoids, polyphenols, terpenes exerted an antioxidant activity.

Keywords: Caucus carota, anti-oxicant, free radical, carcinogens

Corresponding author

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INTRODUCTION

Antioxidants are involved intimately in the prevention of cellular damage which is the common pathway for aging, cancer, and a variety of other diseases. Free radicals are atoms or groups of atoms with an odd (unpaired) number of electrons and can be formed when oxygen interacts with certain molecules. Once formed these highly reactive radicals can start a chain reaction. Their chief danger comes from the damage they can do when they react with important cellular components such as DNA, or the cell membrane which may lead to cellular death. To prevent free radical damage the body has a defense system of *antioxidants.* Antioxidants are molecules which can safely interact with free radicals and terminate the chain reaction before vital molecules are damaged.

MATERIALS AND METHODS

PLANT MATERIALS

Carrot (Daucuscarota) was purchased from the local market in Chennai and was identified by The Director, National institute of herbal science, West Tambaram, Chennai, Tamil Nadu.

PREPARATION OF PLANT EXTRACT

Carrot was obtained from the local market was shade dried and powdered using mechanical mixer. The plant extract was prepared using soxhlet apparatus, by maceration of 50 g of the dried chopped carrot in a mixture of 200 ml ethanol and 200 ml distilled water by shaking them for 48 hrs and pressing the solution out of the material using a filter press. The extraction solvent was then removed under reduced pressure until the extract was obtained as a dried gum. The final extracted material weighed 10g. Concentrations of the extract were prepared by dissolving final product in distilled water.

DPPH SCAVENGING ASSAY

This assay is based on reduction of absorbance of methanol solution of DPPH by free radical scavenger.DPPH radical scavenging activity was done using the method of Yohozowa et al. The reaction mixture containing 1.9ml of DPPH solution (200µM in ethanol) with different concentrations of the substance was shaken and incubated in dark for 20min at room temperature. The resultant absorbance was recorded at 517nm. The percentage inhibition was calculated using the formula

$$\text{Percentage inhibition} = \frac{Abs_{control} - Abs_{sample}}{Abs_{control}} \times 100$$

RESULTS

S.No	Sample taken(ml)	Conc (µg)	Reagent taken(ml)		Absorbance at 517nm		
1	0.10	1000	1.900	Incubation period in dark for 20 min	0.2037	0.1715	0.2059
2	0.08	800	1.920		0.1737	0.2036	0.1942
3	0.04	400	1.960		0.1867	0.1844	0.2061
4	0.02	200	1.980		0.1051	0.1082	0.1166
5	0.01	100	1.990		0.1047	0.0982	0.0997

Control: 1.9ml of DPPH + 0.1ml of DMSO =0.2788
Blank: 1.9ml of ethanol +0.1ml of DMSO =
% Scavenging Activity= Control- Test/Test X 100
For 100µg concentration = 0.2788-0.1937/0.2788*100= **30.57%**
For 200µg concentration = 0.2788-0.1905/0.2788*100= **31.67%**
For 400µg concentration = 0.2788-0.1924/0.2788*100= **30.99%**
For 800µg concentration = 0.2788-0.1099/0.2788*100= **60.58%**
For 1000µg concentration = 0.2788-0.10087/0.2788*100= **63.80%**

The given sampleDaucuscarota showed the dose dependent activity in scavenging the free radicals compared to that of the Curcumin standard.

DISCUSSION

Free radicals are chemical entities that can exist separately with one or more unpaired electrons. The propagation of free radical can brings about several adverse reactions leading to extensive tissue damaged. Lipid proteins are all susceptibleto attack by free radical (Cotran 1999, 1992). DPPH (Free radic. Res, 1997) is a relatively stable free radical and the assay to determine the ability of Daucuscarota extract to reduce DPPH radical by converting the unpaired electrons to paired ones (Nakagawa T, 2002), which actually is the action of antioxidant. In our study Daucuscarota extract produces a dose dependent scavenging of OH- radical. The reducing property of Daucuscarota extract indicates that it is capable of donating hydrogen atoms in dose dependent manner. (IE, 2000)Further studies need to be carried out for the quantification of secondary metabolites which may be responsible for the antioxidant activity [1-8].

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