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EVALUATION OF BETA CAROTENE BLEACHING ASSAY ACTIVITIY ON SOME NUTRITIONAL SUPPLEMENTS

P. Swetha*

Assistant Professor, Department of Pharmacognosy and Phytochemistry, Pathfinder Instituent of Pharmacy Education and Research, Opposite Warangal Airport, Mamnoor, Warangal-506166, Telangana, India.

***Corresponding Author: P. Swetha**
Assistant Professor, Department of Pharmacognosy and Phytochemistry, Pathfinder Instituent of Pharmacy Education and Research, Opposite Warangal Airport, Mamnoor, Warangal-506166, Telangana, India.

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ABSTRACT

The nutritional supplements are the natural food supplements, and other related products used to boost the nutritional content of the diet. These nutritional supplements have been of interest to research because of their antioxidant property by consumption of food and drinks. The present study deals with a comparative evaluation of antioxidant effects of marketed nutritional supplements using Beta carotene bleaching assay activities on RBC under *in-vitro* condition. The marketed nutritional supplements exhibited highest antioxidant potential was found with nutritional supplements like horlicks (83.50%) and boost (89.70%) respectively. While the least antioxidant activity was found to be in complan nutria gro (57.2%) and complan pista badam (57.2%).when compared to standard and other nutritional supplements.

KEYWORDS: Alternative uses of drugs antioxidant activity, Beta carotene, Add-on-therapy.

INTRODUCTION

Nutrition can be defined as all processes used by an adult or child to take in food and to digest, absorb, transport, utilize, and excrete food substances, components or substances found in food are called as nutrition.(Endres,1994). Nutritional supplements include vitamins, minerals, herbs, meal supplements, sports nutrition products, natural food supplements, and other related products used to boost the nutritional content of the diet. Nutritional supplements are used for many purposes. They can be added to the diet to boost overall health and energy; to provide immune system support and reduce the risks of illness and age-related conditions; to improve performance in athletic and mental activities; and to support the healing process during illness and disease.(Balch.*et a*l.2005) However, most of these products are treated as food and not regulated as drugs nutrition supplements contains vitamins, minerals, meal supplements and herbs. Nutritional supplement drinks are available for different purposes and different age groups children's, women's. Sport persons, disease persons, pregnancy ladies, feeding mothers. (Amin *et.al* 2002).

MATERIALS AND REAGENTS

Table 1: Materials and Reagents.

S. No	Beta Carotene Bleaching Assay	Company
1	Beta carotene	Sisco, Mumbai
2	Chloroform	Finar, Ahmedabad
3	Linoleic	Sisco, Mumbai
4	Tween-40	Sisco, Mumbai
5	Methanol	Finar, Ahmedabad
6	Alpha Tocopherol	Alfa aesar, England

NUTRITIONAL SUPPLEMENTS

Boost, Horlicks, Women Horlicks, Junior Horlicks and Kissan Nutria Gro (Glaxo smith kine, punjab), Complan Memory, Complan Nutri Gro ,Complan Kesar Badam(Heinz India pvt Limited, mumbai) Pediasure(Abbott Singapore Private Limited, singapore), Bournvita, Bournvita 5 Star(Cabdury Limited, India), ProtinexVanilla(Wock Hardt Limited, mumbai).

β - CAROTENE BLEACHING ASSAY

Principle

The biologically relevant oxidizable substrate beta carotene gives direct information on the protective effect of extract. Linoleic acid upon oxidation produces hydrogen peroxide as free radical during incubation which bleaches the yellow color of beta carotene. The

antioxidant activity was measured based on the ability of the samples to prevent the bleaching of beta carotene. (Juhi M *et al.*, 2009).

Procedure

One milliliter of β-carotene solution (antioxidant 0.2 mg/ml chloroform) was pipette into a round-bottom flask (50ml) containing 0.02 ml of linoleic acid and 0.2 ml of 100% Tween 20. The mixture was then evaporated at 40°C for 10 min by means of a rotary evaporator to remove chloroform. After evaporation, the mixture was immediately diluted with 100 ml of distilled water. The distilled water was added slowly to the mixture with vigorous agitation to form an emulsion.

5ml aliquots of the emulsion were transferred into different test tubes containing 0.2 ml of samples in 80% methanol at 1 mg/ml. The tubes were then gently mixed and placed at 45°C in a water bath for 2 h. Absorbance of the samples was measured at 470 nm using a spectrophotometer (Milton Roy Company, New York) at initial time (t=0). The measurement was carried out at 15 min intervals. All determinations were performed in triplicate. (Olorunjuwon J *et a.,2015).*

Blank

Blank consisting of an emulsion without β-carotene. Tubes were then gently mixed and placed at 45°C in a water bath for 2 h. Absorbance of the samples was measured at 470 nm using a spectrophotometer. The measurement was carried out at 15 min intervals. All determinations were performed in triplicate.

Standards Solution

At the same concentration with samples were used as comparison. 0.2 ml of 80% methanol in 5 ml of the above emulsion was used as the control. Tubes were then gently mixed and placed at 45°C in a water bath for 2 h. Absorbance of the samples was measured at 470 nm using a spectrophotometer. The measurement was carried out at 15 min intervals. All determinations were performed in triplicate. (Jayaprakasha *et al.*, 2001).

$$AAC = \frac{\text{Absorbanceof test sample120 min} - \text{Absorbance of blank120 min}}{\text{absorbance of test sample 0 min} - \text{absorbance of blank 0 min}} \times 100$$

RESULTS

Beta Carotene Bleaching Assay

The effect and percentage shows the comparative β-carotene bleaching rates of the control, standards and nutritional products extracts. It shows a decrease in absorbance of β-carotene in the presence of different nutritional products extracts due to the oxidation of β-carotene and linoleic acid. This indicates that all tested nutritional products possessed antioxidant capacity.

As shown in Table 2, mean total antioxidant activity of nutritional products Horlicks, Bournvita, Complannutrigro, Complanpistabadam, (83.50%), (89.70%), (57.20%) (57.20%), respectively.

Table 2: Effect and percentage of beta carotene bleaching assay on nutritional supplements.

S. No	Product	Average Reading		Percentage
		0-Hour	2-Hour	
1	Blank	ZERO	ZERO	0.00%
2	Horlick	0.425	0.355	83.50%
3	Junior Horlicks	0.169	0.103	61.40%
4	Women Horlicks	0.573	0.426	76.90%
5	Complan Memory	0.472	0.296	62.70%
6	Complan Nutri-Gro	2.136	1.216	57.20%
7	Complan Pista Badam	2.136	1.216	57.20%
8	Complan Kesar Badam	0.422	0.296	80.70%
9	Booste	0.344	0.624	72.40%
10	Kissan Nutri-Smart	0.359	0.29	80.70%
11	Maltova	0.443	0.276	70.70%
12	Pedisure	0.995	0.374	76.90%
13	Protinex Vanilla	0.395	0.276	70.70%
14	Protinex Chocholate	0.861	0.624	77.00%
15	Bournvita	0.624	0.56	89.70%
16	Bournvita 5-Star	0.525	0.394	74.80%
17	Control	0.426	0.196	46%
19	Positive	0.35	0.265	75.70%

Highest reading are Horlicks (83.50%), bournvita (89.70%), lowest reading are complan nutrigro (57.20%), complan pista badam (57.20%).

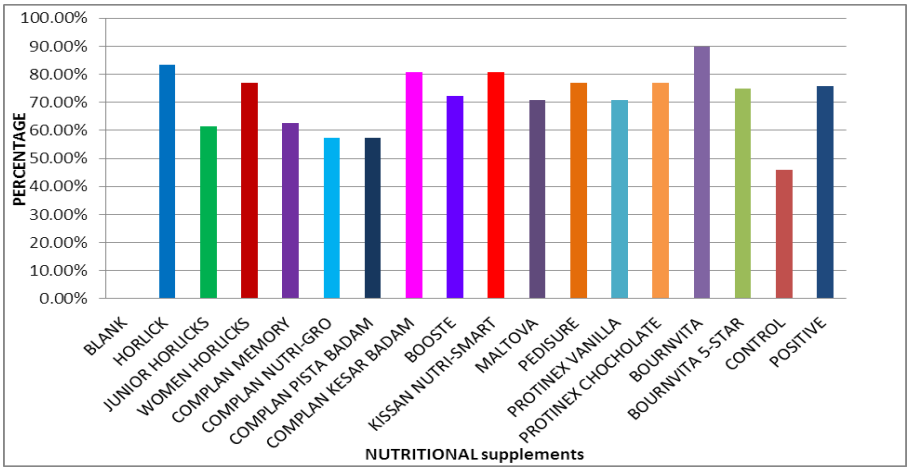

Fig. 1: Percentage of beta carotene bleaching assay on nutritional supplements.

CONCULSION

The present study reveals that nutritional supplements were found to active against, oxidation**.** The comparative data obtained regarding the pharmacological activities of nutritional supplements in the present investigation can be used for further studies in other areas of interest and also for studies on healthy volunteers.

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