

Vol II Issue VI Dec 2012

Impact Factor : 0.1870

ISSN No :2231-5063

Monthly Multidisciplinary
Research Journal

Golden Research

Thoughts

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RNI MAHMUL/2011/38595

ISSN No.2230-7850

Indian Streams Research Journal is a multidisciplinary research journal, published monthly in English, Hindi & Marathi Language. All research papers submitted to the journal will be double - blind peer reviewed referred by members of the editorial Board readers will include investigator in universities, research institutes government and industry with research interest in the general subjects.

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QUANTITATIVE ANALYSIS OF ANTIOXIDANTS FROM SOME MEDICINAL PLANTS

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Abstract:

Antioxidants are widely used as ingredients in dietary supplements in the hope of maintaining health and preventing diseases. Antioxidants also prevent food spoilage via food additive. But use of synthetic antioxidants is not safe due to their health risks and toxicity. The search for antioxidants from natural sources has received much attention to identify compounds that act as suitable antioxidants and replace the synthetic ones. In addition, these naturally-occurring antioxidants can be formulated to give nutraceuticals that can help to prevent oxidative damage from occurring in the body. There are several types of antioxidants which include vitamins, A, E, C, and B-complex the mineral selenium, Zinc and the synthetic compound BHT and BHA. Epidemiological evidence suggest that consumption of fruits and vegetables may reduce the risk of both cancer and cardiovascular disease and it has been hypothesized that this is due in part to the presence of antioxidants compounds in fruit and vegetables. Species like Coleus amboinicus, Spilanthus paniculata are perennial herbs commonly used in regular vegetable combination traditionally. This research exercise is an attempt to estimate types and quantity of kinds of antioxidants available in these species.

KEYWORDS

Perennial, Antioxidant, Epidemiological, etc.

INTRODUCTION *

Antioxidants are substance that slow the breakdown of nutrients and counteract the destructive effect of free radical (chemically reactive compounds) in the body. There are several types which include vitamins, A, E, C, and B-complex the mineral selenium, Zinc and the synthetic compound BHT and BHA. Vitamins A, C and E as well as BHA and BHT are used as preserving agents in cosmetics.

Antioxidants cancel out the cells damaging effects of free radicals (Sies 1997). Furthermore people who eat fruits and vegetables which are good sources of antioxidants have lower risk of heart disease (Stanner et al. 2004) and there is evidence that some type of vegetables and fruits in general probably protect against a number of cancers (World cancer research fund 1997). These observations suggested that Antioxidants might help to prevent disease such as muscular degeneration (Bartlett et al. 2003), suppressed immunity due to poor nutrition (Wintergerst et al. 2006). Many nutraceutical and health food companies now sell formulations of antioxidants as dietary supplements and these are widely used in industrialized countries (Radimer et al. 2004). These supplements may include specific antioxidants chemicals like resveratrol (from grape seeds), the combination of antioxidants like the 'ACES' product that contains β -carotene, Vitamin-C, and Vitamin-E.

There has been intense interest recently among the public and the media in the possibility that increased intake of dietary antioxidants may protect against chronic disease. Many research programmes are underway in this area. Epidemiological evidence suggests that consumption of fruits and vegetables may reduce the risk of both cancer and cardiovascular disease and it has been hypothesized that this is due in part to the presence of antioxidant compounds in fruit and vegetables. Herbs that contain antioxidants, vitamins and minerals in diet are required for good health. Species like *Coleus amboinicus*, *Spilanthes paniculata* are perennial herbs commonly used in regular vegetable combination traditionally. Palani et al. (2010) have shown antioxidant activities of the ethanol extract of *Coleus aromaticus*. Phenolic and polyphenol constituents namely carvacrol, flavonoids, rosmarinic acid, caffeic acid and chlorogenic acid are reported to be responsible for antioxidant activity of *Coleus aromaticus*. Some phytochemicals produced by plants have antimicrobial activity allowing these plants (*Spilanthes paniculata*) to be studied and used for the development of new antimicrobial drugs (Nascimento et al., 2000).

This research exercise is an attempt to estimate types and quantity of kinds of antioxidants available in these species.

MATERIAL AND METHODS

Coleus amboinicus, *Spilanthes paniculata* are the native species of Vidarbha, these are collected from botanical garden of GVISH Amravati.

Spilanthes paniculata L.

Erect or ascending, annual herbs, 20-45 cm tall. Stem and branches striate, more or less pubescent. Leaves opposite, broadly

ovate, narrow at base, acute, glabrous, petiole 0.5-4 cm long. Heads radiate or discoid, ovoid, 8-12 cm long. Receptacle

Columnar, paleaceous, involucre bracts with many seriate, ovate-oblong, 2-3 dm long, obtuse. Marginal florets 5-12, with yellow broadly ovate, ligulate corollas. Central florets many, with yellow, tubular, 5-lobed corollas.

Distribution - Aurangabad, Nanded, Osmanabad, Prabhani district, Fls and frts - October to March

Coleus amboinicus L.

Decumbent or erect, perennial herbs or undershrubs, branches strongly aromatic often ascending and spreading, subfleshy and villous. Leaves broadly ovate, spatulate or almost sub-orbicular, 2.5-6 cm long and broad rather thick, subcordate at base, crenate-serrate, hairy on both surface, obtuse or subacute, petiole 2-3 cm long. Flowers in dense, floral bracts in 4 rows, caduceous. Calyx tubular, erect or suberect, longer than the corolla tube. Fruit not s

Distribution - commonly planted in household garden or in plots., Fls and frts - January to March

Quantitative analysis of oxidants from these species has been done by standard method of biochemical analysis by Thimaiah S.R (1999).

RESULTS AND DISCUSSION

Sr. no.	Antioxidant Analysed	Name of plant	Plant part analysed	Wt.of plant part	Vol.of extract	Vol.of extract analysed	Absorbance (nm)	Antioxidant estimated (µgm)
1.	Ascorbic acid (540nm)	S.paniculata	Leaf/stem	0.5gm	10ml	0.5ml	0.163	400
		C.amboinicus	Leaf/stem	0.5gm	10ml	0.5ml	0.124	300
2.	Chlorophyll (645/663nm)	S.paniculata	Leaf	1gm	10ml	10ml	0.593/1.392	0.6942
		C.amboinicus	Leaf	1gm	10ml	10ml	0.243/0.547	0.2788
3.	T.Carotenoids (450nm)	S.paniculata	Leaf	1gm	10ml	1ml	1.347	0.431
		C.amboinicus	Leaf	1gm	10ml	1ml	1.255	0.4016
4.	Lycopene (503nm)	S.paniculata	Leaf	2gm	15ml	30ml	0.108	1.685
		C.amboinicus	Leaf	2gm	15ml	30ml	0.178	2.777
5.	T.Phenol (650nm)	S.paniculata	Leaf	1gm	10ml	1ml	0.069	940
		C.amboinicus	Leaf	1gm	10ml	1ml	0.041	560
6.	Anthocyanin (650nm)	S.paniculata	Leaf	1gm	10ml	1ml	0.428	10.7
		C.amboinicus	Leaf	1gm	10ml	1ml	0.182	4.55
7.	T.flavonoids	S.paniculata	Leaf	1gm	10ml	0.5ml	0.123	3120
		C.amboinicus	Leaf	1gm	10ml	0.5ml	0.130	3320

According to recent research ,activated oxygen is thought to be major factor in ageing ,hardening of the arteries, diabetes, cancers and tissue injury of skin.

There are many antioxidants such as ascorbic acid,anthocynin ,lipric acid,pigment molecules(e.g chlorophyll,carotens) glutathionin etc.

Antioxidants activity of the different plant species as spilanthus paniculata,coleus amboinicus.

Ascorbic acid i.e vitamin C is a principal antioxidant. It paradoxically increase ROS production in presence of catalytic cations. Concentration of seminal plasm is 10 times greater than blood plasma .In present investigation spilanthus paniculata shows 400ug. coleus amboinicus shows lower 300ug ascorbic acid. This indicate that the plant species shows highest amount of ascorbic acid.

Another antioxidants is over 600 carotenoid has been described.This large group comprising coloured pigments in plant includes carotenoid such as β-carotene,lycopene,lutein and α-carotene,β-carotene is considered as one of the most important carotenoid present in lipoprotein and membranes in present study on s.paniculata,c. amboinicus near about same 0.431gm,0.4016gm.

Flavonoids occurring naturally in foods and compounds that provides an important dietary sources of antioxidant.The mechanisms of action of flavonoids are through scavenging or chelating processes.(Cook and Samman 1996). Spilanthus and coleus contain 3120,3320ugm flavonoids respectively.

Lycopene is the carotenoid that makes tomatoes red. Many studies one at Harvaed have focused on its antioxidant activity lycopene also supports the immune system in helping to maintain the body free from various types of cancer,especially of the bowel for prostate.In the present study extract prepared from five plant samples prepared extracts were tested for lycopene content using invitro solvents for sequential extraction.The lycopene content of the plant Spilanthus and coleus was found to be 1.685,

2.777MG RESPECTIVELY.

Phenolic compounds are a class of antioxidants agents which act as free radicals terminators (Shahid F and Wanasundara 1992). Many studies have considered fruits, vegetables and leaves are major sources of dietary antioxidants phenolic. wines and such as Cocoa, red wine, black tea and green tea are consumed widely and are known to be good source of phenolic compound, The amount of phenol detected in *Spilanthus*, and *coelus* was found to be 1,940,560 μg m respectively.

Anthocynins are synthesized in the cytoplasm of the plant cells and actively transported across the tonoplast into the vacuole, where they accumulate. (Mol et al 1998). In the present investigation *spilanthus paniculata*, *C. amboinicus* contain 10.7 μg m, 4,55 μg m anthocynin respectively.

As noted earlier, chlorophyll is the pigment primarily responsible for harvesting light energy used in photosynthesis in present study on *S. paniculate*, *C. amboinicus* 0.6942 mg chl/gm tissue, 0.2788 mg total chl/gm tissue. from which it is clear that the *spilanthus* shows high amount of chlorophyll while *Coelus* shows low amount of chlorophyll.

Above studied species are rich in natural antioxidant. Use of these species in regular diet combinations are useful to protect different metabolites of body.

REFERENCES

1. Stanner S.A, Hughes J, Kelly C.V. and Buttriss J. (2004). A review of epidemiological evidence for the antioxidant hypothesis. *Public Health Nutrition* (3):407-22, koi:10.1079/PHN2003593, PNID15153272
2. Sies H. (1997). Oxidative stress, Oxidants and antioxidant. *Exp. Physiol*, 82(2):291-5. PNID 9129943.
3. Bartlett H. and Eperies F. (2003), Age related muscular degeneration and nutritional supplementation: A review of randomized controlled trials. *Ophthalmic Physiol. Opt*, 23(5):383-99. doi:10.1046/j.1475-1313.2003.00130.x. PMID1295886.
4. Cook and Samman 1996 Flavonoids-chemistry, metabolisms, cardioprotective effects, and dietary source, *Nutritional Biochemistry*, 7:66-76.
5. Cook T. (1967) flora of presidency of Bombay. Botanical Survey of India, Calcutta Vol. I, II.
6. Naik V.N (1998). flora of marathwada. Amrut prakashan Arungabad.
7. Nascimento GGF, Locatelli J, Freitas PC, Silva GL. 2000. Antibacterial activity of plant extracts and phytochemicals on antibiotic-resistant bacteria. *Braz. J. Microbiol* 31, 247-256.8
8. Mol, J. Grotewold, F. Koes, R. (1998) How genes paint flowers and seeds. *trends in plant science*, 3, 212-217
9. Palani S, Raja S, Naresh R and Kumar BS. Evaluation of nephroprotective, diuretic and antioxidant activities of *Plectranthus amboinicus* on acetaminophen-induced nephrotoxic rats. *Toxicol Mech Methods*; 20(4): 213-21, (2010).
10. Redimer K., Bindewald B., Swanson C., and Picciano M (2004). Dietary supplement use by US adult; data from the National Health and Nutrition Examination Survey, 1999-2000. *Am. J. Epidemiol.*, 160(4):339-49. doi:10.1093/aje/kwh207. PMID 15286019.
11. Sies H. (1997). Oxidative stress: Oxidants and antioxidants, *Exp. Physiol.*, 82(2):291-5, PMID 9129943.
12. Shahid F and Wanasundara PKJPD, Phenolic antioxidants, *Food Sci Nutr*, 1992, 32:67-103
13. Thimiah S.R (1999). standard method of biochemical analysis Kalyani Publishers, 446-449.
14. Wintergerst E., Maggini S. and Hornig D. (2006). Immune enhancing role of vitamin C and Zinc and effect on clinical condition *Ann. Nutr. Matab.*, 50(2): 85-94. Doi: 10.1159/000090495. PNID 16373990.

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