

**RESEARCH ARTICLE :**

# Nutraceuticals for upliftment of agriculture economy nutritional status and therapeutic recognition

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**SUMMARY :** Earth is rich in variety of plants species including the beneficial one having some medicinal properties. The use of herbal medicines for the treatment of various disease like hepatitis, arthritis, chronic heart diseases, skin disorders, wounds and even cancer have been mentioned in our ‘ayurveda’ and proved scientifically by many researchers of modern times. There is an increased awareness among the people for the beneficial effect of nutraceuticals in day to day life. Fruits, spices and vegetables are commonly used by us can serve an important prophylactic and therapeutic role in day to day life. There is an urgent need to explore the beneficial and therapeutic properties of spices, vegetables and medicinal herbs. Therefore, the present study was conducted with the objectives to formulate the nutraceuticals capsules of vegetables, spices and medicinal herbs for its therapeutic properties and to analyze the nutritional properties of nutraceutical capsules through chemical analysis. Nutraceutical capsules were prepared by filling the powder through cleaning, pressing, drying and powdering the vegetables and medicinal herbs. For Amla cleaning, removing stones, cutting, drying and powdering. Similarity fenugreek seed, celery, Sonth, ashwagandha, giloy, safed musali were peeled cropped, dried and powdered. Regarding the nutritional properties of such powders chemical analysis were carried out by CIAE Bhopal. It has been found from the study that garlic and amla have wonderful effect on weight control system. Drumstick’s leaves work as blood purifier, rich source of protein and controlling blood sugar level. Giloy is useful in increasing blood platelets and curing the dengue fever, whereas hadjod having a wonderful effect a ment of bone fractures, ashwagandha, controls hair fall, regulates cholesterol. The nutritional composition of nutraceutical vegetable’s powder, carrot and garlic powder both are having phosphorus 254.02mg and 328mg, respectively, iron 24.18mg, 19mg, respectively. The rarely known and used drumstick leaves having protein composition (20.88%), fat (4.03%) and iron (87mg/100g). Therefore, it is recommended that intake of vegetables, spices and medicinal herbs, its powder and its nutraceuticals capsules can be beneficial for health due to their therapeutic characteristics as immunity developer, blood purifier, cholesterol controller, constipation remover, anti-lergic, anti inflammatory, antibacterial and antifungal capacity.

**KEY WORDS :**

Nutraceuticals,  
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**BACKGROUND AND OBJECTIVES**

Increased life expectation require an

adequate diet which would be capable of providing extra benefits in terms of energy

metabolism as well as bone, cardiovascular, and mental health. The historical statement of hippocrates “Let your food be your medicine and let your medicine be your food” is persisting and gaining more importance. In 1989, Stephen L. Defelice coined the terms nutraceuticals from the words “nutrition” and “Pharmaceuticals” and later defined it to include “foods”, dietary supplements and medical foods that have a health-medical benefit including the prevention and/or treatment of disease”. While the terms nutraceuticals and functional foods still have no regulatory definition, it is accepted by scientists and food manufacturers to include those foods and their components that provide extra health benefits to humans. Fruits and vegetables are recognized as functional foods according to this definition. In the last decades, it has increasingly been recognized that diets provide humans with more than the necessary nutritional elements including proteins, fats, carbohydrates and the level of minerals and vitamins necessary to combat deficiency symptoms. Functional foods and nutraceuticals provide an opportunity to improve human health, reduce health care costs, and supports food security and economic development in producing countries. With high nutrient value combined with low cost of production, have good potential to help the malnourished to meet their basic energy needs and nutritional requirements. Some food processing techniques affect the concentrations of nutrients and other bioactive components or their bioavailability. At the same time, advances in food processing technology have provided many techniques for the stabilization of nutrients and other valued substances in food. The use of novel and innovative processing technologies is important for further expansion of consumptions and marketing as these technologies aim to provide safe, high quality foods with desirable nutritional and functional properties.

These problems have forced the scientists and researchers to think about the alternative medicines and their applications (Hashemi and Davoodi, 2012). Herbal medicines have always been a form of therapy for livestock among resources poor marginal farmers (Tan and Vanitha, 2004; Alamgir and Uddin, 2010 and Mizaei-Aghsaghali, 2012). The use of herbal medicines for the treatment of various diseases like hepatitis, arthritis, chronic heart diseases, skin disorders, wounds and even cancer have been mentioned in our ‘ayurveda’ and proved scientifically by many researchers of modern times

(Mathew *et al.*, 2010).

Although all vegetables are beneficial, but interestingly, raw leafy vegetables, have highest levels of vitamins and minerals. Raw vegetables are generally used as salad which help to maintain the gastrointestinal motility. Vegetables are good for health since they provide intense flavour, vivid colours and crispy rich texture to the dine menu (Xiao *et al.*, 2012), they are helpful in weight management through controlling hunger (Ello-martine *et al.*, 2005), they prevent constipation and enhances gastrointestinal function (Wagensteen *et al.*, 2004), they reduce the chances of metabolic diseases *viz.*, diabetes mellitus and hypercholesterolemia (Azadbakht *et al.*, 2012) and rich source of vitamins (Vitamin B complex) and minerals (Logendra *et al.*, 2002 and Dahl *et al.*, 2012), they reduce oxidative stress (Esfahani *et al.*, 2011) and enhance immunity (Gibson *et al.*, 2012), Consumption of green vegetables reduces the risk of chronic diseases like diabetes, cancer, central nervous system defects, neural tube defects (NTDs) in infants, megaloblastic anemia and cardiovascular diseases (Adams *et al.*, 2011; Wolfenden *et al.*, 2012; Vazquez-Prieto and Miatello, 2010; Esfaham *et al.*, 2011; Imai *et al.*, 2012 and Sun *et al.*, 2012). Carrot’s scientific name is *Daucus carota* and its beneficial health effects are potent anticancer, artery-protecting immune-modulating infection-fighting, antioxidant properties. Promote reproductive potential, relieve constipation, disease cholesterol have cooling effect, helpful in fevers acidosis constipation, high blood pressure, rheumatism, obesity. (Thangam *et al.*, 2013; Stahl and Sies, 2012 and Xiao *et al.*, 2012). Similarly garlic’s scientific name is *Allium sativum* and its beneficial as ntiparastic, anticancer, antiviral, antibacterial, antiallergic, immunomodulating, antihypertensive, activities, helpful in reducing migraine and blood pressure (Tan and Vanitha, 2004 and Park *et al.*, 2012).

There is an increased awareness among the people for the beneficial effect of nutraceuticals in day to day life. Fruits and vegetables are commonly used by us can serve an important prophylactic and therapeutic role in day to day life. Therefore, there is an urgent need to explore the beneficial and therapeutic properties of vegetables and medicinal herbs.

### Objectives :

- To formulate the nutraceuticals capsules of

vegetables, spices and medicinal herbs for its therapeutic properties.

– To analyze the nutritional properties of nutraceutical capsules through chemical analysis.

## RESOURCES AND METHODS

Nutraceutical capsules were prepared by filling the powder through cleaning, pressing, drying and powdering the vegetables and medicinal herbs. For Amla cleaning, removing stones, cutting drying and powdering. Similarity fenugreek seed, celery, sonth, ashwagandha, giloy, safed musali were peeled chopped, dried and powdered. Regarding the nutritional properties of such powders chemical analysis were carried out by CIAE Bhopal.

## OBSERVATIONS AND ANALYSIS

Table 1 shows the therapeutic values of all natural vegetables, spices and herbs. Although, table is explanatory self revealing that consumption of garlic, amla, carrot, drumstick, spinach strengthen immune system and make body strong. Garlic and Amla have wondering effect on weight control system. Drumstick's leafs work as blood purifier, rich source of protein and controlling blood sugar level. Carrot is a rich source of vitamin-A. It boost immunity system and improve digestion. India is famous for wonderful treasures of spices and vivid herbs which have its medicinal value. Sonth, fenugreek seed and celery are the part of our kitchen but consumed rarely. Whereas it controls cholesterol and sugar. Celery reduce the risk of diabetes

**Table 1 : Formulated nutraceutical capsules of vegetables and medicinal herbs and its health benefits**

Sr. No.	Nutraceutical capsules	Common name	Botanical name	Therapeutic value
<b>1. Vegetables</b>				
	Garlic	Lahsun	<i>Allium sativum</i>	Reduce cholesterol, relieving arthritis/ inflammatory pain, control body weight, improves immune system, prevent cancer, hair loss and anti-fungal infection
	Amla	Amla	<i>Phyllanthus emblica</i>	Helps in digestion, good for brain, blood purifier, improves immunity and makes hair strong and shine
	Drumstick	Sahjana	<i>Moringa oleifera</i>	Blood purifier, strengthen bones, lowers blood sugar level, cures respiratory disorder and good for pregnant women
	Carrot	Gajar	<i>Daucus carota subsp. sativus</i>	Rich source of Vitamin-A, boosts immune system, improves digestion, good source of antioxidants, reduce risk of lung cancer and improves eye sight
	Spinach	Palak	<i>Spinacia oleracea</i>	Rich source of iron, increases hemoglobin, healthy for cardiovascular system, reduces high blood pressure and good for brain and memory
<b>2. Spices</b>				
	Dried ginger capsule	Sonth	<i>Zingiber officinale</i>	Beneficial for diarrhea treatment, remove constipation and relief from indigestion and stomachache
	Fenugreek seed	Methi	<i>Trigonella foenum-graecum</i>	Balances cholesterol levels, reduces sugar levels, eliminates inflammation and irritation in skin. beneficial in boils, blisters, itching, skin irritation and arthritis.
	Celery	Ajwain	<i>Apium graveolens</i>	Reduces risk of diabetes and heart diseases, beneficial in mouth-related diseases, removes stomach disorders, relief from constipation and helps in digestion
<b>3. Medicinal Herbs</b>				
	Giloy	Giloy	AMRITA <i>Tinospora cordifolia</i>	Antioxidant properties, improve health, remove toxic substances from kidneys and liver, increases platelets in blood and also removes the symptoms of dengue fever.
	Gangadi	Gangadi	Hadjod	Strengthens bones and aids in the treatment of fracture
	Ashwandha	Ashwa gndha	<i>Withania somnifera</i>	Good for cardiovascular health, reduce swelling, anti-oxidants and stress-reducing. Strengthens muscles of heart, regulates cholesterol, controls hair fall by decreasing the level of cortisol in the body, effective in controlling bacterial infections in humans.
	Safed Musali	Safed Musali	<i>Chlorophytum borivilianum</i>	Pregnant and lactating women and child can be healthy, very fruitful even after pregnancy, effective for diabetes, conjunctivitis, promotes the production of insulin and also keeps diabetes under control, removes body laxity.

**Table 2 : Nutritional properties of dried/powdered vegetables through chemical analysis for nutraceuticals capsules**

Parameters	Amla raw	Spinach raw	Carrot	Garlic	Quinoa	Drumstick leaf
Moisture %	6.29	5.23	7.64	4.34	5.06	5.06
Fat %	3.1	4.0	1.67	0.93	5.01	4.03
Protein %	3.48	27.79	7.59	12.11	13.42	20.88
Ash %	2.58	25.76	6.70	2.70	3.52	18.91
Phosphorus (mg/100g)	87.65	291.00	254.92	328	312	378
Iron (mg/100g)	22.90	93.19	24.18	19	23.00	87
Calcium %	0.068	0.108	0.074	0.128	0.053	0.5011

and avoid heart problems. The medicinal herbs which are really have its therapeutic value are Giloy, hadjod, ashwagandha, amla and safed musali. Giloy is useful in increasing blood platelets and curing the dengue fever, whereas hadjod having a wondering effect a ment of bone fractures, ashwandha, controls hair fall, regulates cholesterol. Safed musali is a costly herb as it is effective in diabetes, eye problem and pregnancy health.

Table 2 shows the nutritional composition of Nutraceutical vegetable's powder. It is found that amla contains a greater amount of iron (22.90 mg/100g) and phosphorus (87.65mg/100g) that may be the reason why amla is good for aremic person and also helpful in improving immunity. Similarly spinach powder contains iron (93.19mg) phosphorus (291°mg) and protein (27.79%). Spinach increase hemoglobin and good for brain health also.

Carrot and garlic powder both are having phosphorus 254.02mg and 328mg, respectively, iron 24.18mg and 19mg, respectively. Maximum contents of iron and phosphorus shows that both vegetables are good for strength and blood health. Quinoa is called as super food since it is rich in protein 13.42%, phosphorus, 312mg and iron 23mg. It can be used in eradicating malnutrition. The rarely known and used drumstick leaves having protein composition (20.88%), fat (4.03%) and iron (87mg/100g) So it can be used as whole food supplement for person suffering from anemia, bare diseases and low in weight.

### Conclusion and Recommendation:

It can be concluded from the above study that human life expactory can be improved by the intake of medicinal herbs, spices and vegetables regularly which are nutritions, control many health hazards and helps in maintaining good health. The herbs are the gift of nature and nutraceuticals are its processed form of intake which helps in improving health status. Therefore, it is

recommended that intake of vegetables, spices and medicinal herbs, its powder and its nutraceuticals capsules can be beneficial for health due to their therapeutic characteristics as immunity developer, blood purifier, cholestrol controller, constipation remover, anti-elergic, anti inflanatory, antibacterial and antifungal capacity.

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