



## New Concept in Nutraceuticals as Alternative for Pharmaceuticals

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### ABSTRACT :-

Nutraceuticals are the products, which along with order nutrition, utilized as medication. A nutraceuticals product is chemical that gives physiological benefits or protect against chronic diseases. Nutraceuticals are becoming increasingly popular in the sphere health care promotion, diseases reduction and for nutraceuticals have been used not only for nutrition but also as a support therapy for the prevention and treatment of various Nanotechnology can be utilized not only for nutrition but also as a therapeutic to prevent and treat numerous diseases. This review will discuss various nutraceutical classifications and their potential therapeutic and disease, related properties such as anti-cancer, antioxidant, anti-inflammatory and anti-lipid activity, prior knowledge of various interactionists leads to the development of micronized dietary products and other Nutraceuticals.

**Keywords :** include antioxidants, disease modifiers, herbal nutraceuticals, nutraceutical products, and oxidative stress.

### INTRODUCTION:-

The phrase "Nutraceutical" comes from the word "narration" and pharmaceuticals. The term is applied to items that are isolated from herbal products, dietary supplements (nutrients), particular diets, and processed meals such as soups, and beverages that are not only utilized for nutrition but also for medical. [1] Nutraceuticals are of these nutritional supplements which are used for health purposes other than nutrition. [2] India is the home of a large number of medicinal herbs, spices, and tree species, and tree species with a substantial domestic market. However, India's main destinations are the United States and Japan. Nutraceuticals are not widely accepted on a global scale.

Regulatory Systems, Whereas dietary supplements are thought to be more prominent. Currently, numerous Nutraceuticals and functional food items are available with verified health benefits. Recent investigations have demonstrated encouraging outcomes for these substances in various clinical problems such as diabetes [3,4] atherosclerosis [5,6] cardiovascular diseases (CBFs) [7,8] in the current study great effort has been spent to propose novel nutraceuticals based on their diseases modifying implication herbal nutraceuticals that are effective on hard curative disorders related to oxidative stress, such as allergy, Alzheimer, cardiovascular cancer, diabetes eye, immune, inflammatory and Parkinson's diseases, as well as obesity can be used to improve health, delay the aging process, prevent chronic disease, increase life expectancy or support the structure or function of the body. [9] Nutraceuticals, in contrast to pharmaceuticals are substances which increase life expectancy or support the structure the function of the body. Nutraceuticals unlike pharmaceuticals do not normally have patent protection substances that can be used to cure or prevent diseases include both medicines and nutraceuticals components however pharmaceuticals have official approval. [10] As algae, live yeast, seaweeds, and wheatgrass; herbs and plants such as ginseng and Echinacea a detailed finding including clinical data on Nutraceuticals are shown in table. Herbs and plants such as ginseng and Echinacea are expanding robustly. This increment in the growth of the nutraceuticals. Based sector is attributed to a number of factors including an increased public. Cancer, [11,12] neurological [13,14] and renal [19] diseases.

### CLASS:-

1. Allergy and nutraceuticals

2. Alzheimer's disease and nutraceuticals
3. Cardiovascular diseases and nutraceuticals
4. Diabetes and nutraceuticals
5. Immune system and nutraceuticals
6. Inflammation and nutraceuticals
7. Obesity and nutraceuticals
8. Parkinson's disease and nutraceuticals

**1. Allergy and Nutraceutical** Allergy and nutraceuticals This reaction produces an inflammatory response which can range from uncomfortable to hazardous [15] Quercetin also protects low-density lipoprotein (LDL-C) from being damaged particularly in blood arteries [16]

**Quercetin** : Quercetin belongs to the most frequently studied flavonoids that is, together with kaempferol, the most ubiquitous in plant foods although they are generally presented at relative low concentrations of 15-30 mg/kg FW (fresh weight) [35] except for several vegetable varieties with extensive content, such as onions and shallots. Quercetin and its glycosylated forms account for 60%-75% of flavonoid intake [27]. Quercetin occurs on natural plant sources such as various types of vegetables (onions, broccoli, and peppers) [28, 29, 30], caper fruits [31] other kinds of fruits (apples, various berries, and grapes) [32, 33, 34]

**Effect:** Inhibiting histamine release, lowering proinflammatory cytokines, and regulating other inflammatory mediators.

## 2. Alzheimer's disease and nutraceutical:-

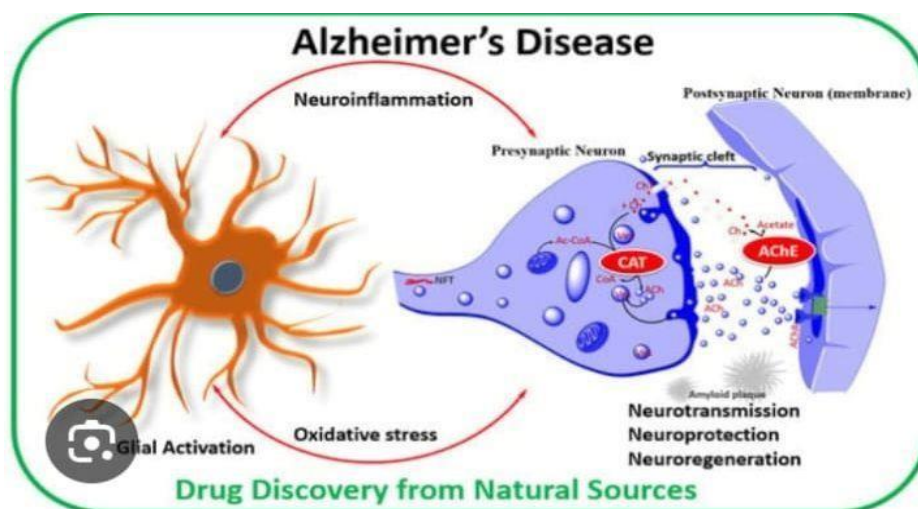


Fig no.1 Alzheimer's Disease

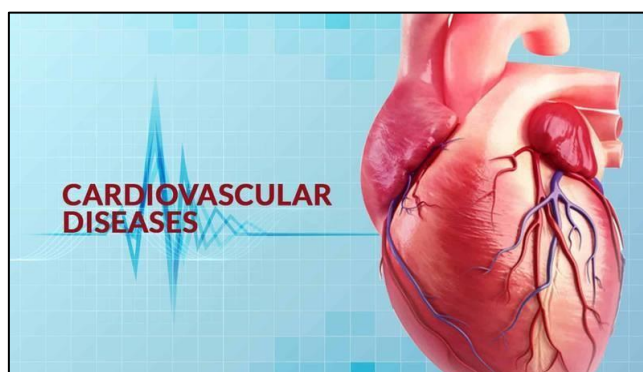
Nutraceuticals antioxidants, lycopene, turmeric. The increased use of nutraceuticals is due to the assumption that these chemicals can delay the onset of dementia, such as Alzheimer's disease. [17]

**Caffeine:** (1,2,7-alkaloids, are routinely used on a regular basis. Caffeine is probably the most widely used psychoactive substance/ psychostimulant [8,9,10].

**Flavonoids** : Flavonoids are a significant class of natural compounds that have a polyphenolic structure specifically the flavone nucleus [34]

**Effect** : The above mentioned animal model studies have identified a variety of probable mechanisms for caffeine release.

### 3. Cardiovascular diseases and nutraceuticals :-



**Fig no.2 Cardiovascular diseases and nutraceutical**

Cardiovascular disorder and nutraceuticals cardiovascular diseases and nutritional CVD is becoming more common over the world and research into is growing.[18, 19]

[20] The majority of the CVDs are avoidable. Many studies found that vegetables and fruits- rich diet CVD. [21,22] flavonoids against CVD Flavonoids are extensively dispersed vegetables, including onions, endives, cruciferous vegetables, grapefruits, apples, cherries, pomegranates berries, black grapes, and red wine, and are available isoflavones, flavanones, and Flavonols .[ 23,24] foods may from coronary heart disease, especially in elderly people [25]

**Spirulina:** Spirulina many research studies have proven that spirulina has therapeutic functions such as antioxidants, anti-inflammatory, hyperlipidemic, antidiabetic, and brain- protective properties quilts [36,37,38,]

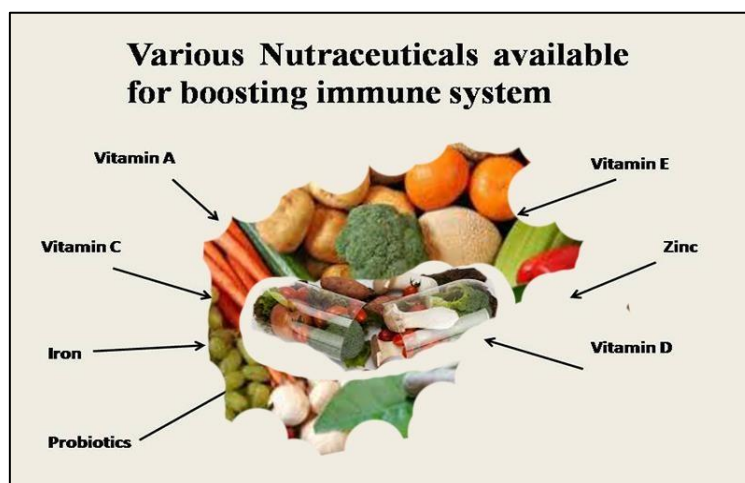
**Green tea :** Green tea contains four major catechisms: (-) epicanthi Furthermore, campfire, contains muricin chlorogenic acid, and caffeine, albeit the letter is only present in coffee[44].

**Ginseng :** Ginseng has been utilized for over 2000 years, in the idea that is a cure- all and promotes longevity. The chemical ingredient include protein lipids.

**Chemical constituents :** Proteins, lipids, vitamins, and minerals.

**Effects :** Spirulina may help mange blood glucose level .

### 4 .Immune system and nutraceuticals:-



**Fig no. 3 Immune system and nutraceuticals**

A wide variety of nutraceutical have been shown to impose crucial roles in immune says and nutraceuticals health and important immunological health and susceptibility to certain disease.

**Curcumin:** curcumin works with verity cells that affect the immune response, including macrophages, dendritic cells, and B and T cells. As with interleukins and generic transcription elements [39,40]

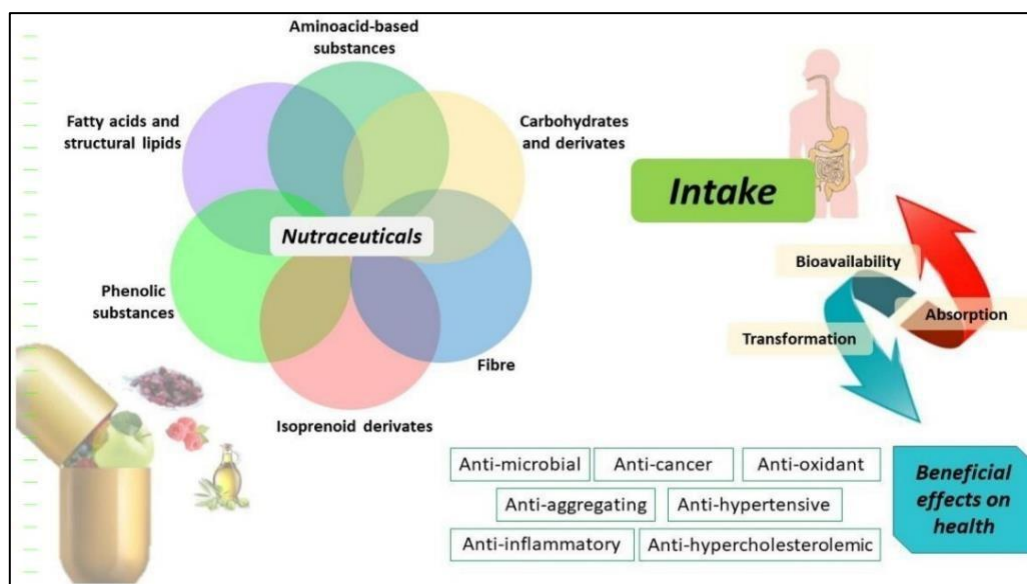
**Alma :** The variability in the composition of alma fruits has been attributed to the cultivar in many studies[41,42,43]

**Curcumin Alma** are the ingredients which use in immune systems :

*chemical* constituents: may studies have related hetrogenescy composition of alma fruits to the cultivar.

**Effects:** Curcumin had anti- inflammatory antioxidants and anti-cancer property.

**5. Inflammation and supplements:**



**Fig no.4 Inflammation and supplements**

Unspecified, and contains glucosamini, chodroithin, and s- adenosyle methionine. **Ginger :**Ginger (Zingiber ffcinaleRoscoe) belongs to zingiberace family of plants.

**Chemical constituents:** include volatile oils and non- volatile pungent compounds, Gongerols and shogaols, zingiberace terpenes.

**Effect:** Rheumatoid arthritis (RA) is chronic autoimmune diseases that affect peripheral joint (hands, feet wrists, shoulders elbows, and knees,).[39].

## 5 .Obesity and nutraceuticals :-

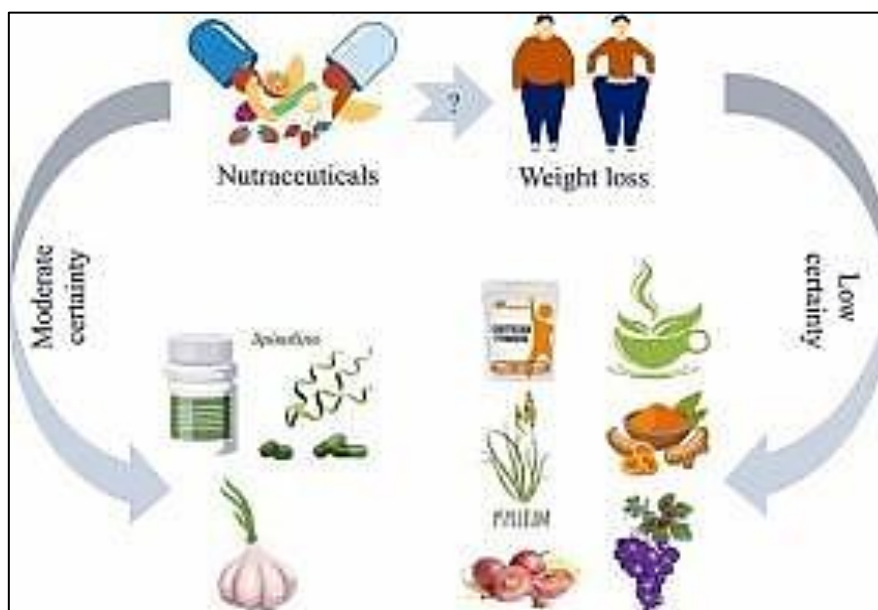


Fig no. 5 Obesity and nutraceuticals

Obesity and nutraceuticals: obesity is a risk factor for illnesses like hypertension, congestive heart failure, vanging pectoris and hyperlipidemia. Respiratory disorders osteoarthritis, cancer, renal vein thrombosis,, and decreased Fertility.[9]

**Cinnamon** :Cinnamon is the flavor additive used to increase the order taste and colour of meals for a long time it is generated from iron brea many tree species from the genus cinnamon, which are widely spired in the Mediterranean region, Asia and India. [44,45]

**Chemical constituents:** chemical ingredients include cinnamaldehyde, cinnamate, cinnamic acid, and several essential oils.[50]

**Effect :** Improves metabolic health increases thermogenesis, and has ability to reduce body fat

## 7. Diabetes and nutraceuticals :-

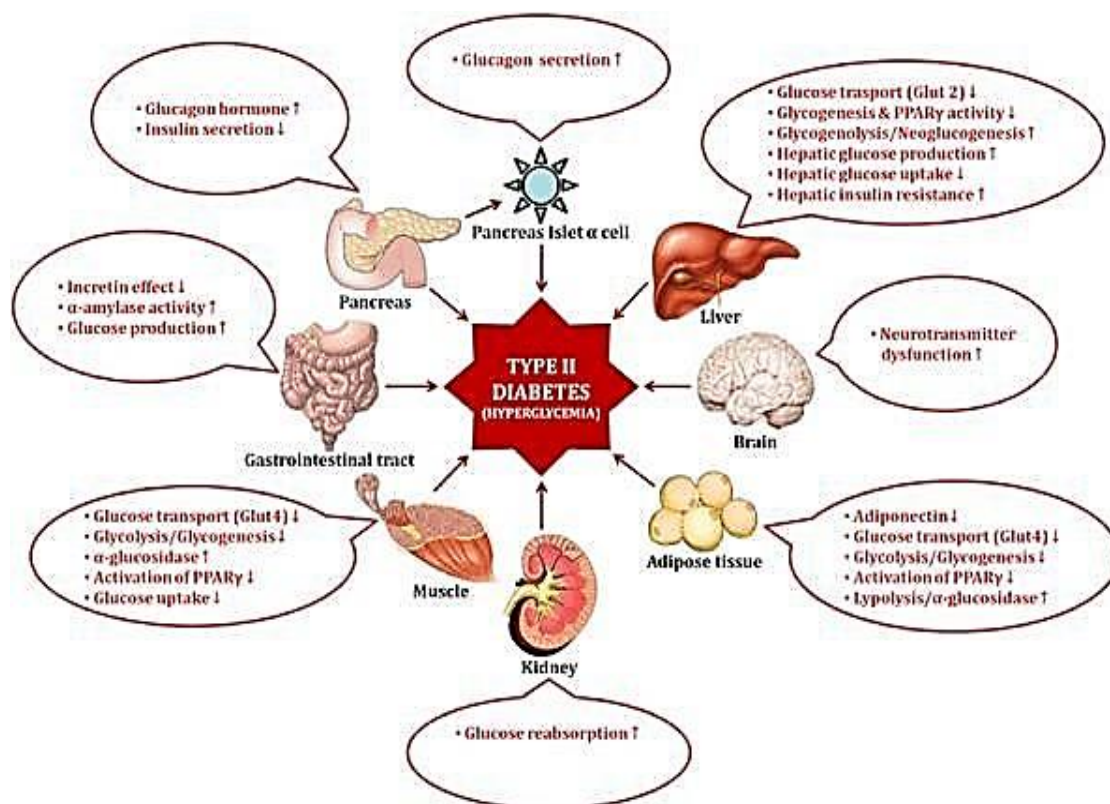


Fig no .6 Diabetes and nutraceuticals

Although numerous medications for prevention and treatment of diabetes have been introduced yet, globally the total number of individuals with diabetes not with various causes is increasing.[11,20] Flavones, mortality rate of type 2 diabetes heart disease.

**Bitter melon** :In the present age of advancing medicine and technology, man's quest has diseases. According to world health organization (WHO), around 89% of the global medical system [43].

**Moringa** : Moringa oleifera (MO) (also known as "drumstick") is a tree from the Moringaceae family that was originally **Chemical constituents** : chemical components include flavonoids, phenolic acid, tannins, isothiocyanates and saponin glycosides.

**Effect**: improves blood sugar control via mechanism such as increased insulin sensitivity

## 8. Parkinson's disease and nutraceutical

Parkinson's illness and nutraceuticals the most visible signs include vitamins E, glutathione, creatine, which appear to protect against Parkinson's disease [46].

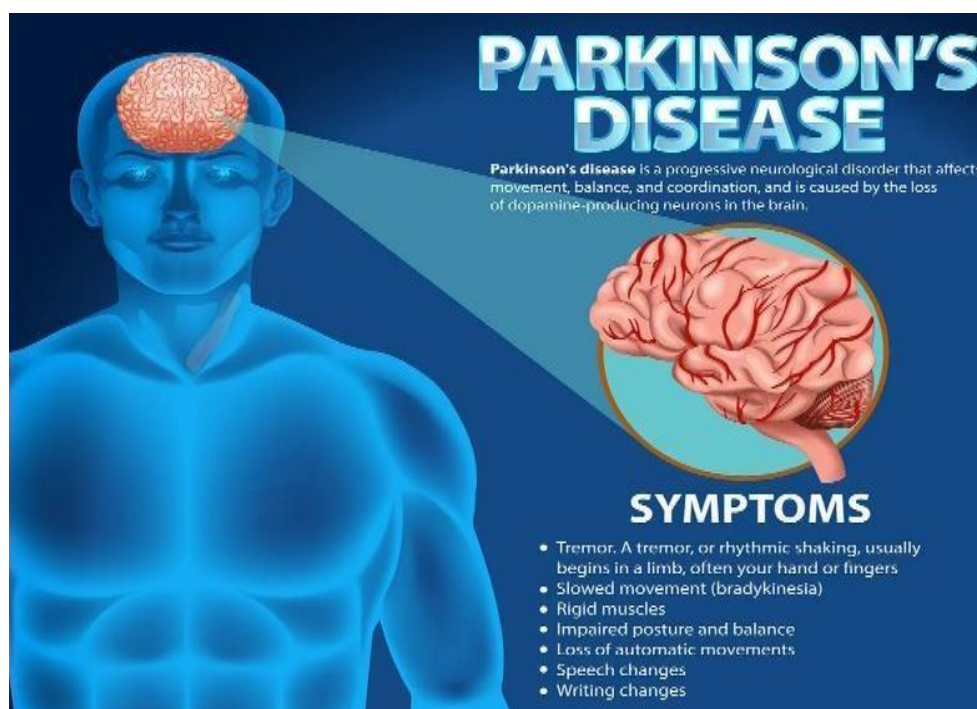


Fig no. 7 PARKINSON'S DISEASE

**Chemical constituents:** chemical ingredients include tocopherols ( alpha beta Gamma and delta) and four tricotrienoides.

**Effect:** include Oxidative stress inflammation and protein.

**CONCLUSIONS:** Nutraceuticals may be described as compounds that have physiological advantages or guard against chronic diseases .Nutraceutical may be used to improve health, delay the aging process ,prevent diseases , increase life expectancy, or support the structure or function of the body. Nowadays, nutraceuticals have revised, considerable interest due to potential nutrinal, spray, and therapeutic effects ,resent studies have shown complications ,in the present review ,much effort has been devoted to provide their disease.

#### REFERENCES:-

- 1.Kalra EK.Nutraceutical- Definition and introduction ASPS pharm SCI 2003; 5:E25.
- 2.Zeisel SH.Regulation of “ nutraceuticals” science 1899;285:1853-5.
3. Baradaran A, madihir Y, Merrikhi A, Rafian- Kipaei M, Nasri H. Serum lipoprotein (a)in diabetic patients with various renal function not ondialysis. Pak J Med Sci 2014; 29 suppl: 354-7 .
- 4.Nasri H. Impact of diabetes mellitus on parathyroid hormone in hemodialysis patients Parvathy Dis 2014;1'9-11. Bahmani M, Zargar AA, Rafiein- Kipaei M, Saki M. Ethnobotanicak study of medicinal plants used in the management of diabetes mellitus in the plants used in the management of diabetes mellitus in the Urmia, Northwest Iron. Asian Pac J Trop Med 2014; ; 7: 348—54.
5. Madihir Y, Barbadian A Rafieian- Kipaei M, Shahinfard N, Ansari R, eye al. Impact of sumac onostprandial high- fat oxidative stress. Pak J Med sci 2014; 29:340-5.
6. Setorki M, Rafieian- Kipaei M Merikhi A, Heidarian Ez Shahinfard N, Ansari R, et al. Suppressive impact of anthem graveilend consumption on biochemical risk factors of atherosclerosis in Hypercholesterolemia rabbits. Int prev Med 2013;4:888-95.
7. Khosravi- Boroujeni H, Mohammadifard N, sattafzadegan N, Sajhadu F, Mahhriun M Khosravi A, et al. Potato consumption and cardiovascular diseases risk factors among iranian population. Int J Food Sci Nutr 2012;63:913-20.. Tavafi M. Diabetic nephropathy and antioxidants. J Nephropathy 2013;2:20-7
8. Khosravi- Boroujeni H, Sarrafzadegan N, Mohammadifard N. Sajjadi F Mahhriun M, Asgari S, et al . White rice onsumptio and CVD risk factors among Iranian population. J Health pipul Nutr 2013 ; 31;252-52.
9. Cater son ID, Gill TP. Obesity: Epidemiology and possible prevention. Best pract Res clin Endocrinol Metab 2002;16:595-619.



10. Chauhan B, Kumar G, Kamal N, Ansari SH. Current concepts and prospects of herbal nutraceuticals : A review. *J Adv. pharm Technol Res* 2014;4:20.
11. Shirzad Burton RC, Smart YCRafieian -kopaei M, Shirzad Natural cytotoxicity of NC2+cells against the growth and metastasis of WEHI-164 fibrosarcoma. *Scand J Immunol* 2011;73:85-90.
12. Shizad Kordyzadi Shahinfard N, Nikokar M. Does Royal Jelly affect tumor cells? *J Herb Med Pharmacology* 2013;2:45-8. Rafieian -Kopaei M, Baradaran A. Plants antioxidants: from laboratory to clinic. *J Nephropathil* 2013;2:152-3.
13. Akhlaghi M, Sasanian G Rafieian Kipaei M, Parvin N, Saadat M, Akhlagho M. Citrus aurantium blossom and preoperative anxiety. *Bras Anestesiol* 2011;61:702-12.
14. Rohafza H, Sarrafzadegan N, Sadeghi M, Rafieian -Kopaei Sajjadi F, Khosravi Boroujeni H.
15. Grammaticus AP. The genetic and environmental basis of atopic diseases. *Ann Med* 2008; 40:482-95.
16. Kruger CL, Murphy M, DeFreitad Z, Pfannkuch F, Heimbach J an innovative approach to the determination of safety for a dietary ingredient derived from a new source: case study using a crystalline lutein product. *Food chem Toxicol* 2002; 40:1535-49.
17. Glenville N Nutritional supplements in pregnancy: commercial push or evidence based? *Current Opin Obstet Gynecol* 2006; 18:642-7.
18. Ghorbani A, Rafieian - Kipaei M, Nasri H. Lipoprotein (a) : More than a bystander in the etiology of hypertension? A study on essential hypertensive patients not yet on treatment. *J Nephropathil* 2013;2:67-70.
19. Rafieian – Kipaei M, Metformin and renal injury protection *J Renal iniprev* 2013;2:91-2.
20. Nasri H, Sahinfard N, Rafieian M, S, Shirzad M, Rafieian- Kipaei N. Effects of *Allium sativum* on liver enzymes and atherosclerotic risk factors. *J Herbed Pharmacology* 2013;2:24-8
21. Rafieian- Kipaei M. Medicinal plants and the human needs. *J Herb Med pharmacology* 2012;1:1-2
22. Hu FB, Willett WC. Optimal diets for prevention of coronary heart disease. *JAMA* 2002; 288:2569-78
23. Hajivandi A, Amiri M. World kidney day 2014: kidney disease and elderly. *J Parathyroid Dis* 2014;2:3-4
24. Gharipur M, Ramezani MA sadeghi M, khosravi A, masjedi M, khosravi- Boroujeni H et al. Sex based levels of C- reactive protein and white blood cells count in subject with metabolic syndrome: Isfahan Healthy Hert program. *J Res Med sci* 2014;18:467-72..
25. Khosravi- Boroujeni H, Sarrafzadegan N, Mohammadifard N, Sajjadi G maghriun M Asgari S, et al. White rice consumption and CVD risk factors among Iranian population. *J Health popul Nutr* 2013;31:252-61.
26. Rafieian- Kipaei M, Baradaran A, Rafieian M. Plants antioxidants: From laboratory to clinic. *J Nephropathil* 2013;2:152-30
27. Bouktaib M., Atmani A., Rolando C. Regio- and stereoselective synthesis of the major metabolic of quercetin, quercetin- 3-O-B<sub>d</sub>- glucuronide. *Tetrahedron Lett.* 2002; 43:6263-6266. doi: 10.1016/S0040-4039(02)011264-9. [DOI] [Google Scholar]
28. Ko E., Nile S.H., Sharma K., Li G.H., Park S.W. Effect of different exposed lights on quercetin and quercetin glucoside content in onion (*Allium Cepa* L.) *saudi J. Biol. Sci.* 2015;23:398-403. doi: 10.1016/j.sjbs.. 2014.11.013 [DOI] [PMV Free article] [PubMed] [Google Scholar]
29. Sun T., Xu., Wu C.T., Janes M., Prinyawiwatkul W., No H. Antioxidant activities of different colored Sweet bell peppers (*Capsicum annuum* L.) *J. Food Sci.* 2007; 72: : S97- S102. DOI: 10.1111/j. 1750-3841.2006.00245.x. [DOI] [pub Med] [Google Scholar]
30. Francesca N., Barbata M, Martorana A., Saino F., Galion R, Aponte M., Moschetti G., Settannu L Optimised method for the analysis of phenolic compounds from caper (*capris Spinosa* L.) berries and monitoring of their changes during fermentation. *Food chem.* 2016. 196: 1172-1179. DOI: 10.1016/j. food chem 2015.10.045. [DOI] [PubMed] [ Google Scholar]
31. Zielinski A.A.F., Alberti S., Braga C.M., da Silva K.M., Canteri M.H.G., Nafrat L.I., Granados D, Nogueira A., Woolsack G. Effect of mash laceration and ripening stage of apples on phenolic compounds and antioxidants power of coldy juices: A study using chemometrics. *LET- Food SCI. Technolo.* 2014; 57: 223-229. doi: 10.1016/j.2 Wt. 2014.01 029. [DOI] [Google Scholar]
32. Skrovankova S., SumCZynski D., Mlcek J., Jurikova T., Sochor J. Bioactive compounds and antioxidants activity in different types of berries. *Int. J. Mol. Sci.* 2015; 16: 24673-24706. DOI: 10.3399/ijms161024673. [ DOI] [PMC Free article] [ PubMed] [Google Scholar]
33. Flamini R., Mattivir F., de Rosso M. Arapitsas P, Bavaresco L. Advanced Knowledge of Three important classes of Grapes phenolics: Anthocyanins, Stilbenes and Flavonols. *Int. Mol. Sci.* 2013; 14: 19652-19669. DOI: 10.3390/ijms 141019651. [DOI] [PMC Free article] [ PubMed] [Google Scholar]
34. Kumar S, Pandey A. Chemistry and biological activities of flavonoids: An overview. *Sci. World J.* 2014; 2014:1:-16 doi: 10.1155/2013/1662750. [Doi] [PMC Free article] [ PubMed] [Google Scholar]



35. Manach C., Scalbert S., Morang C., Remedy C., Jimenez L. Polyphenols: Food source and bioavailability. *Amet. J clin Nutr.* 2004;79:727-747 doi:10.1093/ajcnl78.5 727. [DOI] PubMed [Google Scholar]
36. Karkos p., Leong S, karkos C., sivaji N, Assimakopoulos D. Spirulina in clinical practice. Evidence- based human applications Evid- Based Complement cAltern. Med . 3011;2012:531053.doi: 20.1093/exam/nen058.[ DOI] [PMC Free article] [PubMed] [Google Scholar]
37. Chei S., oh H, Song J. Spirulina maxima extract prevents activation of the NLRP3 in ammasome by inhibiting ERK signaling. *Sci.* 5888-6.[ DOI] [ PMC Free article] [PubMed] [Google Scholar]
38. Denf R, Choe T.J Hypilipidemic, antioxidant, and antiinflammatory activities of microalages Spirulina. *Cardiovadc. Their.* 2010;2010.00209.x.[DOI] [PMC Free article] [PubMed] [Google Scholar]
39. Momtazu- Borojeni A, Hegtcheshmeh S.M., Esmaceli S.A., Johnston T.P., Abdollahi E, Sahebkar A. Curcumin: A natural modulator of immune cells in systemic lupus erythematous. *Autoimmune. Rev* 2018;17:125-doi: 10.1016/j.autrev.2017.11.016. [DOI] [PubMed] [Google Scholar]
40. Bose S., Panda S.K., Mukherjee S., Sa G. curcumin and tumor immune- editing: Tesurrectiong the immune system. *Cell Div.* 2015;10:6.dou :10.1186/s13008-015-0012-Z.[DOI] [PMC Free article] [PubMed] [ Google Scholar]
41. Tiwari R., Kumar V., Sharma H K. Physival and chemical chatcteristicsod different cultivars of Indian gooseberry (Embolc official's) *J Food Sci. Technol.* 2019; 57:16421648.doi: 20.2007)s13197-019-0355-y [DOI] [PMC Free article ] [PubMed] [[Google Scholar]
42. Sonaksr N., Rajoriya D., chetana R., Venkatesh Murthy K. Effect of cultivars, pretreatment and draying on physicochemical properties of Alma (Embluca officialis)) grating *J. Food Sci. Technol.* 2020;57:989-0982.doi: 10 1007/s13197-019-4131-8.[DOI] [PMC Free article] [PubMed] [Google Scholar]
43. J.C. Chen et al. Kugucins F-D, Cucurbita trietpenouds from Momordica charantia. *Phytochemistry* 2009).
44. M. Akhlanols et. al Flavanols are potential anti-obesoty agents, systematic review and meta- analysis of controlled clinical trials *Nitr Metabol cardiovadcDos* (2028) .
45. Koh E., Wimalasiri., Chassy., Mitchell A. Content of ascorbic acid, quercetin, kaempferol and total phenolics in commercial and total phenolics in commercial broccoli. *J. Food comp. Anal.* 2009;22:637.doi: 20. 1016/j .jfca. 2009.01.029.[DOI] [Google scholar]

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