



## Natural Substances That Reduces and Fights Cancer in Human Being

Authors

**Dr Tejendra A Rajput<sup>1\*</sup>, Dr Snehal A Patil<sup>2</sup>**

<sup>1</sup>Department of Chemistry, GES's, Art's, Commerce and Science College, Jawhar, Dist. Palghar India

Email: [tejenrajput@gmail.com](mailto:tejenrajput@gmail.com)

<sup>2</sup>Research Student, Saptshrungi Ayurvedic College, Hirawadi, Nashik

Email: [snehalnarkhede89@gmail.com](mailto:snehalnarkhede89@gmail.com)

### ABSTRACT

*Cancer is one of the most treacherous, fast propagating with quite high transience rate disease of present century even in the developed and developing country. The situation is even worse in the in developed country due to lack of knowledge, scarcity and non-availability of quality drugs. Cancer is one of the leading causes of death in the world. India is a rich source of medicinal plants and a number of plant extracts have been used in a variety of systems of medicines such as Ayurveda, Siddha, Unani, etc. to cure various diseases. One of the easiest things for a person touched by cancer to address is their diet. Our view is that a diet is the most helpful diet in fighting cancer. Remember that 'good nourishment' is a crucial weapon in the fight in opposition to cancer and any sickness. Good cancer nutrition can be vital in increasing your personal odds of survival. Certain bioactive compounds, found in foods, are known to have strong epigenetic (cancer correcting) benefits. Supplements concentrate those benefits.*

**Keywords:** Cancer, daily food, phytoconstituents, caratenoids etc.

### INTRODUCTION

Cancer is one of the principal causes of death in the world. According to the 2014 World Cancer Report, approximately 14 million new cancer cases and 8.2 million cancer deaths were reported in 2012. Among the unusual types of cancer, lung cancer is associated with the greatest mortality (1.5 million), followed by liver (745 000), stomach (723 000), colorectal (694 000), breast (521 000), and esophageal cancer (400 000) deaths <sup>[1]</sup>. The number of new cancer cases is expected to increase by 70%, from 14 million to 22 million, in the next approx 2 decades <sup>[2]</sup>. The populations of Africa, Asia, and America represent 70% of all cancer deaths and 60% of the total new annual cancer cases worldwide <sup>[3]</sup>.

Cancer is one of the most dangerous, fast propagating with quite high transience rate disease of present century even in the developed and rising country. The situation is even worse in the under developed country due to lack of knowledge, poverty and non-availability of quality drugs <sup>[4]</sup>. Cancer is a disorder developed due to some molecular changes within the cell. It becomes the second major cause of death in the human after cardiovascular disease <sup>[5]</sup>.

India is a rich source of medicinal plants and a number of plant extracts have been used in a variety of systems of medicines such as *Ayurveda*, *Siddha*, *Unani*, etc. to cure various diseases. Only a small number of of them have been scientifically explored. Plant derived natural products such as

flavonoids, terpenoids, alkaloids<sup>[3]</sup>, etc have received significant concentration in recent years due to their different pharmacological properties including cytotoxic and cancer chemo-preventive effects<sup>[6]</sup>.

### **ROLE OF NATURAL SUBSTANCES IN CANCER:**

Since ancient times, numerous medicinal plants extracts and their active components have been reported to have potential uses as anticancer agents. Various studies have been reported that medicinal plants display anticancer activities<sup>[7]</sup>. Phenolic acids, flavonoids, terpenes, and alkaloids, possess the biological potential of medicinal plants<sup>[8-10]</sup>. Triterpenoids such as ursolic acid, oleanolic acid, boswellic acids, pomolic acid, avicins, oleanolic acids, and fomitelic acids have been reported to exert cytotoxic effects<sup>[11]</sup>. Furthermore, flavonoids such as kaempferol, myricetin, quercetin, and rutin have been reported to display anticancer properties<sup>[12]</sup>. Additionally, several alkaloids such as asmatrine and sanguinarine have been reported to possess anticancer activities<sup>[13]</sup>. Researchers have demonstrated the possible mechanisms of action of medicinal plants and their active ingredients compounds, which may make use of these mechanisms individually or in combination with other compounds present in the plants. One major potential mechanism of action for reducing damage caused by disease is antioxidation<sup>[14]</sup>. Liu reported the various potential activities of phytochemicals in cancer<sup>[15]</sup>. Another review detailed the biological efficacies, especially the potential activities, of flavonoids against cancer<sup>[16]</sup>. Numerous phytochemicals present in medicinal plants can induce cytotoxicity against various types of cancerous cells.

#### **Types of cancer in Human Being<sup>[17]</sup>:**

There are more than 100 types of cancer. Types of cancer are usually named for the organs or tissues where the cancers form, but they also may be described by the type of cell that formed them. The types are, Acute Lymphoblastic Leukemia

(ALL), Acute Myeloid Leukemia (AML), Adolescents, Cancer, Adrenocortical Carcinoma, Adult, Childhood Adrenocortical, AIDS-Related Cancers, Kaposi Sarcoma (Soft Tissue Sarcoma), AIDS-Related Lymphoma (Lymphoma), Primary CNS Lymphoma (Lymphoma), Anal Cancer, Gastrointestinal Carcinoid Tumors, Astrocytomas, Childhood (Brain Cancer), Atypical Teratoid Tumor, Childhood, Central Nervous System (Brain Cancer), Basal Cell Carcinoma of the Skin - see Skin Cancer, Bile Duct Cancer, Bladder Cancer, Childhood Bladder Cancer, Brain Tumors, Breast Cancer, Childhood Breast Cancer, Bronchial Tumors, Burkitt Lymphoma, Carcinoid Tumor (Gastrointestinal), Childhood Carcinoid Tumors, Cardiac (Heart) Tumors, Central Nervous System, Germ Cell Tumor, Childhood (Brain Cancer), Primary CNS Lymphoma, Cervical Cancer, Childhood Cervical Cancer, Childhood Cancers, Bile Duct Cancer, Chordoma, Chronic Lymphocytic Leukemia (CLL), Chronic Myelogenous Leukemia (CML), Chronic Myeloproliferative Neoplasms, Colorectal Cancer, Childhood Colorectal Cancer, Craniopharyngioma, Childhood (Brain Cancer), Cutaneous T-Cell Lymphoma - see Lymphoma (Mycosis Fungoides and Sézary Syndrome), Ductal Carcinoma In Situ (DCIS), Embryonal Tumors, Central Nervous System, Childhood (Brain Cancer), Endometrial Cancer (Uterine Cancer), Ependymoma, Childhood (Brain Cancer), Esophageal Cancer, Ewing Sarcoma, Extracranial Germ Cell Tumor, Childhood, Extragonadal Germ Cell Tumor, Eye Cancer, Childhood Intraocular Melanoma - see Unusual Cancers of Childhood, Intraocular Melanoma, Retinoblastoma, Fallopian Tube Cancer, Fibrous Histiocytoma of Bone, Malignant, and Osteosarcoma, Gallbladder Cancer, Gastric (Stomach) Cancer, Childhood Gastric (Stomach) Cancer - see Unusual Cancers of Childhood, Gastrointestinal Carcinoid Tumor, Gastrointestinal Stromal Tumors (GIST) (Soft Tissue Sarcoma), Germ Cell Tumors, Extragonadal Germ Cell Tumors, Ovarian Germ Cell Tumors, Testicular Cancer, Gestational

Trophoblastic Disease, Hairy Cell Leukemia, Head and Neck Cancer, Childhood Head and Neck Cancers, Heart Tumors, Childhood, Hepatocellular (Liver) Cancer, Histiocytosis, Langerhans Cell, Hodgkin Lymphoma, Hypopharyngeal Cancer (Head and Neck Cancer, Intraocular Melanoma, Islet Cell Tumors, Pancreatic Neuroendocrine Tumors, Kaposi Sarcoma (Soft Tissue Sarcoma), Kidney (Renal Cell) Cancer, Langerhans Cell Histiocytosis, Laryngeal Cancer (Head and Neck Cancer), Childhood Laryngeal Cancer and Papillomatosis, Leukemia, Lip and Oral Cavity Cancer (Head and Neck Cancer), Liver Cancer, Lung Cancer (Non-Small Cell and Small Cell), Childhood Lung Cancer, Lymphoma, Male Breast Cancer, Malignant Fibrous Histiocytoma of Bone and Osteosarcoma, Melanoma, Childhood Melanoma, Melanoma, Intraocular (Eye), Childhood Intraocular Melanoma, Merkel Cell Carcinoma (Skin Cancer), Mesothelioma, Malignant, Childhood Mesothelioma, Metastatic Cancer, Metastatic Squamous Neck Cancer with Occult Primary, Midline Tract Carcinoma Involving NUT Gene, Mouth Cancer (Head and Neck Cancer), Multiple Endocrine Neoplasia Syndromes - see Unusual Cancers of Childhood, Multiple Myeloma/Plasma Cell Neoplasms, Mycosis Fungoides (Lymphoma), Myelodysplastic Syndromes, Myelodysplastic/Myeloproliferative Neoplasms, Myelogenous Leukemia, Chronic (CML), Myeloid Leukemia, Acute (AML), Myeloproliferative Neoplasms, Chronic, Nasal Cavity and Paranasal Sinus Cancer (Head and Neck Cancer), Nasopharyngeal Cancer (Head and Neck Cancer), Childhood Nasopharyngeal Cancer, Neuroblastoma, Non-Hodgkin Lymphoma, Non-Small Cell Lung Cancer, Oral Cancer, Lip and Oral Cavity Cancer and Oropharyngeal Cancer (Head and Neck Cancer), Childhood Oral Cavity Cancer, Osteosarcoma and Malignant Fibrous Histiocytoma of Bone, Ovarian Cancer, Childhood Ovarian Cancer, Pancreatic Cancer, Childhood Pancreatic Cancer, Pancreatic Neuroendocrine Tumors (Islet Cell Tumors),

Papillomatosis, Paraganglioma, Childhood Paraganglioma, Paranasal Sinus and Nasal Cavity Cancer (Head and Neck Cancer), Parathyroid Cancer, Penile Cancer, Pharyngeal Cancer (Head and Neck Cancer), Pheochromocytoma, Childhood Pheochromocytoma, Pituitary Tumor, Plasma Cell Neoplasm/Multiple Myeloma, Pleuropulmonary Blastoma, Pregnancy and Breast Cancer, Primary Central Nervous System (CNS) Lymphoma, Primary Peritoneal Cancer, Prostate Cancer, Rectal Cancer, Recurrent Cancer, Renal Cell (Kidney) Cancer, Retinoblastoma, Rhabdomyosarcoma, Childhood (Soft Tissue Sarcoma), Salivary Gland Cancer (Head and Neck Cancer), Childhood Salivary Gland Tumors, Sarcoma, Childhood Rhabdomyosarcoma (Soft Tissue Sarcoma), Childhood Vascular Tumors (Soft Tissue Sarcoma), Ewing Sarcoma (Bone Cancer), Kaposi Sarcoma (Soft Tissue Sarcoma), Osteosarcoma (Bone Cancer), Uterine Sarcoma, Sézary Syndrome (Lymphoma), Skin Cancer, Childhood Skin Cancer, Small Cell Lung Cancer, Small Intestine Cancer, Soft Tissue Sarcoma, Squamous Cell Carcinoma of the Skin, Squamous Neck Cancer with Occult Primary, Metastatic (Head and Neck Cancer), Stomach (Gastric) Cancer, T-Cell Lymphoma, Cutaneous - see Lymphoma (Mycosis Fungoides and Sèzary Syndrome), Testicular Cancer, Throat Cancer (Head and Neck Cancer), Nasopharyngeal Cancer, Oropharyngeal Cancer, Hypopharyngeal Cancer, Thymoma and Thymic Carcinoma, Thyroid Cancer, Childhood Thyroid Tumors, Transitional Cell Cancer of the Renal Pelvis and Ureter (Kidney (Renal Cell) Cancer), Ureter and Renal Pelvis, Transitional Cell Cancer (Kidney (Renal Cell) Cancer, Urethral Cancer, Uterine Cancer, Endometrial, Uterine Sarcoma, Vaginal Cancer, Vascular Tumors (Soft Tissue Sarcoma), Vulvar Cancer, Wilms Tumor and Other Childhood Kidney Tumors.

#### **Foods to fight cancer in Human being<sup>[18]</sup>:**

One of the easiest possessions for a person touched by cancer to address is their diet. The diet

is in fighting cancer. And here are several foods from it that can each take part in a function in fighting one or more steps in the multi-step cancer process.

Remember that 'good nourishment' is a vital weapon for fighting against cancer. Good cancer diet can be crucial in increasing your individual probability of survival. The American Cancer Society stated that there was 'awe-inspiring evidence' that diet and exercise could increase survival and even prevent a cancer returning.

#### **Oily Fish:**

Fish oil will contains long chain omega-3 acids, a powerful anti-inflammatory in the body that minimizes COX-2. Omega-3 has been shown to increased length of telomeres, which shorts when you have cancer putting the DNA structure at risk and reducing long life. Fish oils also contain amount vitamin A, an important vitamin in the fight against cancer. Fish oils have been helped to reduce prostate, breast and colon cancer. Research has been shows they help prevent cachexia when having chemotherapy. You will also get a little vitamin D from them, another proven cancer-fighter. Omega 3 from fish is an important ingredient in your cancer diet. Please note that the omega 3 from flaxseed is short-chain, equally important but has different benefits.

Carotenoids - Carrots, peppers and greens: Carotenoids also prevents and fights cancer, carotenoids are observe in apricots, red and yellow peppers, greens like kale and spinach and sweet potatoes, carrots provide anti-cancer carotenoids like beta-carotene, which converts to vitamin A. Make a juice by using small amounts of carrots with sweet potatoes, dried apricots and red cherries. A great juice to make yourself involves greens, sweetened by carrots and apples and beetroot with a helping of soothing raw ginger. A real cancer fighting drink. Raw carrots are also high in pectins your helpful destroy by fire bacteria will love you for eating pectins and give you more in return. A red pepper is the top source of vitamin C in even better than oranges.

#### **Ginger:**

Ginger also plays important role to fight against cancer. Fresh, raw ginger has a number of important benefits in cancer. It is a wonderful anti-inflammatory agent in the body and reduces the effects of COX-2. This produces wonderful benefits to the body and especially in the abdomen, reducing rates of cancer spread. Ginger helps to lowers blood sugar levels and gingerols have been shown to have effects against prostate, breast, leukaemia and other many cancer cells.

#### **Seeds:**

Seeds are contains good oils, whole vitamins in a natural form (like vitamin E) and fibre to strengthen your gut flora. People who consume the highest levels of natural fibre have higher immune systems. Followings are important seeds used to fights cancer cells are,

#### **Sunflower Seeds:**

It contains Zinc helps vitamin C do its work and accelerates therapeutic time. It is important to a healthy prostate. You need 20 to 25 mgs per day. Sunflower seeds will also provide a little selenium.

#### **Pumpkin Seeds:**

Pumpkin seeds are also fights cancer cells. Can be mixed with the sunflower seeds and eat together. 5 tablespoons along with sunflower seeds will provide 20 mgs of vitamin E, the unique cancer buster mixture, which inhibits cancer cell growth and protects immune cells from harmful radicals. Vitamin E boosts your immune system's fighting abilities. The target is 300-600 mgs and is difficult to achieve without supplements.

#### **Sesame Seeds:**

Sesame seeds are fights cancer cells. Sesame seeds contains unique lignans can reduce blood pressure and lipid levels. Number of research shows they can fight inflammation and cancer. Gamma tocopherol, vitamin E reduces inflammation around the body. Both sesame and flax seeds are converted to compounds that can stop oestrogen cancers.

**Mushrooms:**

There's an enormous body of research evidence now that shows how 'medicinal' mushrooms boost the immune system and fight cancer. Even the button mushroom has cancer fighting ingredients.

**Tomatoes:**

Seven to ten helpings per week, especially cooked. It is also found in strawberries, peppers, carrots and peaches, but one tin of tomato soup prevents cancer. Lycopene helps reduce 'bad' fat levels in the blood stream and is a strong antioxidant.

**Green leafy vegetables:**

Along with beans, carrots, apricots, pumpkins, and egg yolk green vegetables will give you folic acid if your stomach bacteria are strong. Folate, biotin, choline, inositol and vitamins B group are help in the cancer fight. Niacin has been shown to kill cancer cells. Greens and whole grains are the best sources. A diet rich in greens will help alkalyse your body. A slightly alkaline range body is important as it improves the performance of your immune system and research shows it stops new mets.

**Broccoli:**

Like other green vegetables (e.g. cabbage etc), broccoli contains important fibre which helps eliminate toxins from body. However, the fibre is rich in galactose, which binds to damaging agents in the intestine and is one of the favourite foods of good, helpful gut bacteria. Broccoli also contains indoles, and especially indole-3 carbinol which are modifies and diminishes aggressive oestrogen action, can modify cellular oestrogen receptor sites, and helps in fighting oestrogen-driven cancers like some breast, prostate, brain and colorectal types cancer.

**Garlic:**

It is a truly magnificent food. It contains medicinal active ingredients like allicin look to act to stop the spread of cancer in a number of ways. Garlic is also anti-inflammatory in the body. It has a number of active ingredients i. e. selenium, tryptophan and sulphur-based active agents that

attack cancer cells. Two or three raw cloves of garlic raw per day will ward off more than vampires.

**Pulses:**

Lentils, chickpeas, beans, peas, kidney beans and even soya beans are a great source of plant protein. Most importantly they release their carbohydrate slowly because of their high fibre content. They reduce blood glucose. Pulses also contain isoflavones called phytoestrogens. Phytoestrogens bind more weakly than human oestrogen and wash through the body - so you need to eat them daily.

**Supplements that fight cancer** <sup>[19-20]</sup>:

Certain bioactive compounds, found in foods, are known to have strong cancer correcting benefits. Supplements concentrate those benefits. Followings are important supplements that fights cancer,

**Fish oils:**

Fish oils contain long chain omega 3 is essential for healthy health, control of local inflammation, longevity and much etc. Fish oils reduce the risk of cachexia, and can reduce polyps, the precursors to colorectal cancer.

**Selenium:**

Helps displace heavy metals from the body. Anti-oxidant mineral recognised more and more as essential in the fight against cancer.

**Vitamin E:**

Vitamin E is powerful immune system booster but take it in a natural form that ideally combines all 4 tocopherols and all 4 tocotrienols compounds.

**Chlorella:**

Chlorella is rich source of vitamin A, rather than take vitamin A. People simply do not eat enough 'greens', and chlorella is a 'super-green'. Chlorella is amazing source of natural cis- and trans-beta-carotene, minerals and vitamin B-12, especially important if you employ a meat free diet. This is how to get your vitamin A; your body will make what it wants from beta-carotene.

**VitaminD:**

Vit. D. is important vitamin in human being if you cannot get a several hours in the sunshine every day, you should need supplementation of

5000IUs, as recommended by Harvard medical School. This vitamin is actually a hormone type and has been shown to activate the immune system, reduce the risk of cancer and even correct cancer cells in research studies.

#### **Grape Seed Extract:**

Grapes are very important in due to its medicinal values shown in the American vital study to be the top anti-oxidant easily available. It is an Pine Bark Extract (another OPC but not in the research study) may be even better.

#### **Curcumin:**

Curcumin's medicinal values are equal with vitamin D and fish oils. Review of literature shows a variety of health benefits; an anti-oxidant, anti-bacterial and anti-inflammatory, this spice seems to play a strong role in a number of anti-cancer pathways and in other illnesses too.

#### **B complex**

B Vitamins are essential for correct cellular division and replication apart from playing a role in the nervous system and many of the senses.

#### **CONCLUSION**

A study shows that there were certain herbs as well as daily foods that posses cancer fighting and preventing abilities. Adding these herbs to your daily diet is good way to help your body fight the cancer causing triggers. Medicinal plants are the major sources of tremendously active conservative drugs for the treatment of various types of disorders and diseases, including several forms of cancer. The phytoconstituents isolated from medicinal plants may not specifically function as anticancer agents or drugs but may provide alternatives for the advancement of prospective cytotoxic agents. As research progresses, new technologies will aid in the improvement of the anticancer activities of drugs.

#### **ACKNOWLEDGEMENT**

Author 1 is thankful to Management of Gokhale Education Society and Dr. S. V. Joshi, Principal, Gokhale Education Society's, Art's, Commerce and Science college, Jawhar, Dist. Palghar.

#### **REFERENCES**

1. International Agency for Research on Cancer, "World cancer report 2014," WHO, Geneva, Switzerland.
2. World Health Organization, *Global Battle against Cancer Won't Be Won with Treatment Alone. Effective Prevention Measures Urgently Needed to Prevent Cancer Crisis*, International Agency for Research on Cancer, London, UK, 2014.
3. Moten, D. Schafer, P. Farmer, J. Kim, and M. Ferrari, "Redefining global health priorities: improving cancer care in developing settings," *Journal of Global Health*, vol. 4, no. 1, Article ID 010304, 2014.
4. Manfred E, Wolff ME, Burger Medicinal Chemistry and Drug Discovery, 5th edition, Volume 1, 1994, pp-611
5. Mechanism based target identification and drug discovery in cancer Research, Jackson BG. *Science* 2000; 287: 1964-1969.
6. Pavan Kumar Bellamakondi, Ashok Godavarthi, Mohammed Ibrahim, Seetaram Kulkarni, Ramchandra Naik M, Maradam Sunitha. *In vitro* Cytotoxicity of caralluma species by MTT and Trypan blue dye exclusion. *Asian J Pharm Clin Res*, Vol 7, Issue 2, 2014, 17-19.
7. G. M. Cragg and D. J. Newman, "Plants as a source of anticancer agents," *Journal of Ethnopharmacology*, vol. 100, no. 1-2, pp. 72-79, 2005.
8. M. J. Balunas and A. D. Kinghorn, "Drug discovery from medicinal plants," *Life Sciences*, vol. 78, no. 5, pp. 431-441, 2005.
9. W. Ren, Z. Qiao, H. Wang, L. Zhu, and L. Zhang, "Flavonoids: promising anticancer agents," *Medicinal Research Reviews*, vol. 23, no. 4, pp. 519-534, 2003.
10. M.-L. Hu, "Dietary polyphenols as antioxidants and anticancer agents: more questions than answers," *Chang Gung*

*Medical Journal*, vol. 34, no. 5, pp. 449–460, 2011.

11. P. Dzubak, M. Hajduch, D. Vydra et al., “Pharmacological activities of natural triterpenoids and their therapeutic implications,” *Natural Product Reports*, vol. 23, no. 3, pp. 394–411, 2006.
12. J.-J. Lu, J.-L. Bao, X.-P. Chen, M. Huang, and Y.-T. Wang, “Alkaloids isolated from natural herbs as the anticancer agents,” *Evidence-Based Complementary and Alternative Medicine*, vol. 2012, Article ID 485042, 2012.
13. P. V. Rao, P. Sujana, T. Vijayakanth, and M. D. Naidu, “*Rhinacanthus nasutus*—its protective role in oxidative stress and antioxidant status in streptozotocin induced diabetic rats,” *Asian Pacific Journal of Tropical Disease*, vol. 2, no. 4, pp. 327–330, 2012.
14. R. H. Liu, “Potential synergy of phytochemicals in cancer prevention: mechanism of action,” *The Journal of Nutrition*, vol. 134, no. 12, pp. 3479S–3485S, 2004.
15. L. Le Marchand, “Cancer preventive effects of flavonoids—a review,” *Biomedicine & Pharmacotherapy*, vol. 56, no. 6, pp. 296–301, 2002.
16. E. A. Murphy, B. K. Majeti, L. A. Barnes et al., “Nanoparticle mediated drug delivery to tumor vasculature suppresses metastasis,” *Proceedings of the National Academy of Sciences of the United States of America*, vol. 105, no. 27, pp. 9343–9348, 2008.
17. <https://www.cancer.gov/types>.
18. <http://www.canceractive.com/cancer>.
19. <https://www.healthxchange.sg/food-nutrition/food>.
20. <https://www.cancer.org/treatment/survivors-hip-during-and-after>.