



# Treatment of Skin Cancer by Medicinal Plants [A review]

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## Abstract

Skin cancer is one of the mortal diseases and constantly rises day by day. The way of treatment for different types of cancer is chemotherapy. Several synthetic anticancer drugs are used but they have side effects. Chemotherapeutic drugs for cancers designate to develop opposition against normal cells and restrain by the level of treatment. There is a foremost challenge to care and build up medicines for skin cancer. As an alternative to that, plants are a vital basis of organically energetic ordinary outcomes. They provide us commercially significant materials in themselves which may well supply lead structures for the upgrading of assumed derivatives to gain improved actions and condensed toxicity in the treatment of cancer. Medicines extracted from natural resources have a possible ability as cancer-curing mediators due to their accessibility easy to buy has no side effects. Medicines made from herbal plants have enormous and successful applications and curative capability which accelerate the systematic study. This assessment provides awareness concerning several plants having action against cancer.

**Keywords:** Skin Cancer; medicinal plants; Zingiber officinale; Aloe Species; Artemisia Species.

## Introduction

The leading human organ is skin which covers the whole body and it protects the whole organism's body from environmental challenges. If environmental changes take place like sun rays microorganisms which can roughly injure the skin inside layers (Ghissassi et al, 2009). The

loss or damage of epidermal cells is called skin cancer (Lippens et al., 2011). Fair or white-colored people are chancy to skin cancer over the world (Kim and Armstrong, 2011). Skin cancer is also caused by environmental stress, which occurs in three stages resembling cancer beginning, support, and development (Henning's et al, 1993).

Tobacco, viral infection, chemicals, radiations, and diet are additional hazards for causing skin cancer (Lemkebthomas et al, 2008). There are two main types of skin cancer namely, Cancer does not begin in melanocytes: Non-melanoma skin cancer is the class of cancer. It consists of two types; basal cell cancer and squamous cell cancer (Samarasinghe and Madan, 2012). Cancer begins in melanocytes: This form of cancer is fatal. Melanoma skin cancer is subdivided into four types;(a)superficial spreading melanoma, (b) nodular melanoma, (c) lentigo malignant melanoma (d) acral melanoma (Skin cancer: Types, diagnosis, and prevention, 2013). By challenging treat and management skin cancer is a mortal disease universally.

According to the World Health Organisation (2018), one-third of people are falling in skin cancer. Approximately 232,000 people were diagnosed with skin cancer in 2012 as for every Cancer Research UK (2018). An expected 100,350 novel cases of persistent skin cancer will be identified in the U.S. in 2020, among 6,850 deaths expected to outcome from the analysis. Melanoma records for less than 1% of skin cancer cases, however, the majority are skin cancer deaths. The whole occurrence of skin cancer is about 2.6% (1 in 38) for the European people, 0.1% (1 in 1,000) for African and Americans, 0.6% (1 in 167) for Hispanics. The former studies illustrate if skin cancer is noticed near the beginning than the endurance time for five years is 99% in the U.S. The survival time falls to 65% after the disease gets to the lymph nodes and 25% after the diseases multiply to further organs (Cancer Society's Cancer Facts & Figures 2020). The first phase of cancer takes place behind revealing to cancer creating agents, like chemicals ultraviolet (UV) radiation which demolishes the DNA of the cell. UV radiation produces two types of harms. 1. Openly, during DNA harmed by photons 2. Ultimately, through distressing DNA membranes, and proteins by reactive pressure of oxygen (Kvam et al, 1997). Skin cancer is also caused after exposure to acid rain.

Skin cancer can be prohibited by scheming the contributing mediators mentioned above. The latest systems used for the treatment of skin cancer are through surgery, by the bombardment of radiations, by giving a dose of chemicals (Conroy et al, 2010). For skin cancer treatment there are several complications and side effects, so natural approaches for various cancers may be better. Chemotherapeutic agents have severe side effects and numerous additional problems. There are diverse systems which oppose cancer cell to treat with chemicals are drug efflux plans, an increase of drug aims, or divisions in the kinetics of medicines (Iyer et al,2013; Kunjachan et al., 2013; Markman et al., 2013).

To recover from skin cancer diverse companionable ways and further medicines, owing to the difficulty with prescribed cancer therapies with chemicals and the natural treatment have more benefits (Molassiotis et al, 2005). Chemical complexes created by plants, which are obtained from roots, bulbs, barks, leaves, stems. Various herbs comprise an elevated influence of combating beside cancer or functioning as lead compounds in the production of new medicines. A total of 50 % of drugs are used globally which are making from plant extracts (Wyk et al, 1997). People utilize diverse and usual progressions with traditional origins and identified philosophies for curing different categories of diseases. Supposed forms tell that the entire plant consists of 250,000 species and the best 10 % were look into the pharmacy. Alkaloids, flavonoids, phenolics, tannins, glycosides, gums, resins, and oils are the essentials accountable for the curing of diseases. These elements or their revised forms have verified that they have

high-quality competence against tumors (Frische et al, 2003). Compounds of plants contain properties like irritations dropping stimulatory and oxidation reserve possessions. In skin cancer these complexes performing the uppermost capability of manners of anticipation through chemicals (Katiyar et al,2011). Carotenoids, flavonoids, and terpenoids are some of the aggregates of plants having elevated power adjacent to cancer (Batra et al 2013, Kuttan et al 2011, Steinmetz et al,1992). Some of these compounds of plants are conferred below:

### **Flavonoids**

Flavonoids having central features for the reason that they slow down oxidation and oncogenesis and further physiological qualities. (Wang et al,2011, Saeidnia et al,2013). In human diet, quercetin is the mainly ordinary flavonol and is found in plants in numerous glycosidic figures, such as galactosides, rhamnosides, arabinosides (Erlund,2004, Hollman,1997). Quercetin is acquired from, apples, tomatoes, tea, grapes, Ginkgo, and St John's (Kelly,2011).

### **Carotenoid**

Carotenoids comprise medicinal possessions which are presumed as they comprise oxidation reserve properties to lessen DNA damage when rendering to UV light. Carotenoids are transformed addicted to retinol and apply the products of retinol on the body. Retinol is essential in dispersion, safeguarding and divergence of cells inside the epithelial layer (Payette et al, 2014).

### **Terpenoids**

Terpenoids are the important complexes which are originated from such plants like, mosses, liverworts, algae, and lichens. Terpenes or is terpenes are the composites gained from these plants. The organization of terpenoids comprises five carbon components and important classes comprise of hemiterpenoids, monoterpenoids, sesquiterpenoids diterpenoids, triterpenoids, tetraterpenoids, and polyterpenoids. Few mushrooms and ferula spp are the plants comprises of terpenoid extracts and they were analyzed for their cancer cell killing capacity in vitro (Trajković, 2009). Family Brassicaceae vegetables contain sulforaphane having isothiocyanate (the chemical group contained in several phytochemicals found in cruciferous vegetables). Sulforaphane effect against cancer is cell death initiation, a reserve of cell propagation, and the reserving of disease to invade other parts of the body ( Fimognari and Hrelia,2007).

### **The action of Plant Extracts against Skin Cancer**

The following are the plants which have important activities against cancer.

#### **Zingiber officinale**

Zingiber officinale is the scientific name of ginger. Ginger is a herb having a single cotyledon which presents as a tuber. Ginger having a vigorous part called gingerol, and it contains the capability to fight against cancer cells of the epidermis. The gingerol effects on cancer of epidermal cells and it also acts as a growth retardation factor have an action against rapid multiplication and cell death initiation (Conroy et al, 2010).

### **Aloe Species**

A plant that is known for its medical properties and mostly for different applications. For instance like wound curing as a softening and for the treatment of skin distress (Van et al, 2005). Aloe, containing a compound named as aloin, contains a capability to stop cancer cell development, delay the cell union processes as well as erupt cancer cell to the substances toxic to cell i.e., cisplatin. The next compound exists in aloe which holds action against skin cancer is Emodin (Tabolacci et al 2013).

### **Artemisia Species**

Artemisia is a plant (herb or shrub) having more than 500 diverse species of A flavonoid is known as eupatilin, which is got from Artemisia species. This flavinoid holdup development of cells, resist cell death and control G2/M cell cycle seize the human skin cancer cells (Shawi et al, 2011).

### **Alpinia**

Alpinia oxyphylla extracts have been experienced for feasible measures against cancer of the skin. A.oxyphylla extract from fissionable fluid CO<sub>2</sub> was recognized to act as a growth resisting mediator in human tumour cells (lee et al, 2013). Two compounds resulting from A. galangal, and bisdemethoxycurcumin, are renowned widely to reserved cancer cell outburst (lo et al, 2013).

### **Melaleuca alternifolia**

Mainly the skin cancer is cured by the tea tree oil, extracted from Melaleuca alternifolia, which is recognized for its a range of therapeutic features. The most important and energetic part of M. alternifolia is terpinen-4-ol and its action against cancer being studied. Terpinen-4-ol and tea tree oil slow down cancer cell enlargement in vitro during cell cycle seize, cell death, cell destruction, and reserve of cell explosion (Greay et al,2010). Generally, oil from M. alternifolia and its terpene machinery have confirmed to restrain in vitro and in vivo growth of cancer cells and tumours (Calcabrini et al, 2004).

### **Sunflower**

The seeds oil of sunflower gets from the Helianthus annus which is one of the species of sunflower. The oleic and linoleic acids are the ingredients consists of sunflower oil. As compare to olive oil sunflower seed oil aid higher linoleic acid and provide special treatment. By this appropriate constituent in skin products outstanding to the encouraging advantages of linoleic acid. Sunflower oil contains a capacity to deliberate the consequence of cancer. One of the components of sunflower is sesamol which contains a cancer defensive property (Kapadia et al., 2002).

### **Sesame**

Lignans for example sesamin, sesamol, along with sesamin are the materials which are present in sesame seeds. In skin cancer, sesame oil illustrates the effect of chemicals that work in opposition to cancer. Its constituent, sesamol, has also been demonstrated to play a role in chemoprevention (Kapadia, 2002). The UV rays coming from the sun are defended by applying the sesame oil on the skin (Korac and Kambholja, 2011).

## **Myristica fragrans**

Nutmegs are the seeds acquire from the *Myristica fragrans*. Nutmeg and its fractions have patent role against-diabetes, antihepatotoxicity, against cancer, antiseptic, reduce inflammation and protect nerve cells against damage. These herbs are studied for their toxic quality for cells (Singh and Sharma, 2016; Natesan et al,2007).

## **Medicinal plant demands**

Achievement of flourishing testing developed the drugs from herbs origin and which work for pharmaceutical purposes. Their toxicity to cancer cells and non-toxicity on typical cells coset to strong demand (Hopkins, 2007). In Asia and Africa, a group of plant genus are preferred and check where curative plant and herbal analysis are drawn out depend upon foremost medicines (Hopkins, 2008). According to the World Health Organization 2007 evaluation, the plant copied drugs deal was appreciated US hundred billion dollars. In 2050 the business is required to reach its target at five trillion dollars (Vilar et al., 2008; Hoeng et al., 2012; Daniel et al., 2017).

## **Conclusion**

In the end, it is understandable that compounds that are obtained from plants can participate in a fundamental function in the potential treatment of cancer. This analysis discovers several compounds of plants that have been deliberate to date for their promising features against cancer. Many not used possessions stay behind in the environment. Diversity of diseases is cured via remedies of plants with cancer for thousands of years ago in nature huge numbers of plants hold characters against cancer but they do not entirely explore the biologically active compounds and naturally resultant complexes turn into applicable in future skin cancer treatments. Natural goods have revealed the feasible result for utilization in the investigative action of skin cancer, or to care for the sound effects linked with cancer therapies. This appraisal can facilitate others to observe herbs to advance expansion and its use in diverse disease and toxicity studies along with medical research. This study will facilitate to assess which plant species are efficient and sheltered to utilize and therefore amplify the adequacy and make use of these medicines extracted from plants.

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