

# **An Overview of Traditional Herbal Plants: Pathway to Develop Anti-Cancer Siddha Medicine**

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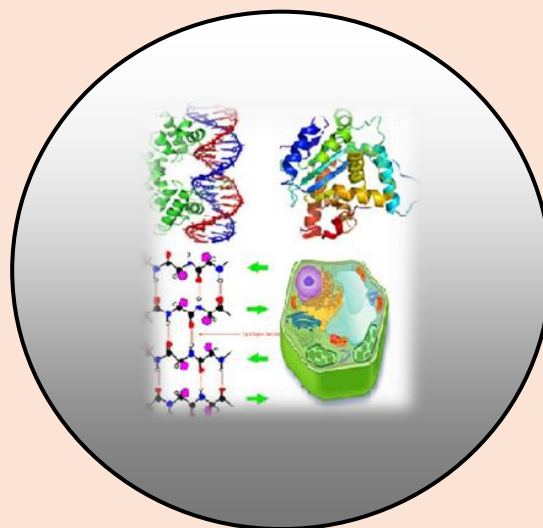
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**REVIEW ARTICLE**

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**ABSTRACT**

*Many herbs of our surroundings are often unnoticed to us which are very powerful to address many of today's major health issues. Particularly, Cancer is one of the leading causes of mortality, not only India, worldwide. The economic burden to treat cancer is increasing every year. In this modern era, people are mostly depending on conventional medicine to get fast relief from such chronic diseases. Once they get fed-up with that system, then trying to focus on other alternative medicine. The present scenario enlightened other systems of medicine, viz., Ayurveda, Siddha and Unani, are considering for the treatment or therapeutic purposes of anti-cancer care. There are much sources from classical texts, particularly in Siddha, which are described more detail in the form of classic poems about the treatment of cancer as well as preventing them before it is turned severe. The main objective of this paper is to highlight the traditional herbs which are treating cancer, based on early Siddha classical texts. Much research reports have evidenced that due to the presence of antioxidants in the medicinal plants, which helps to prevent or suppress cancer disease. For developing new combinations by using herbal plants, and preparation of dose and dosage regimen, this article would be helpful in the treatment of cancer. Also, there is a broad scope for Indian medicinal plants to treat anticancer, which need further research.*

**Keywords:** Medicinal plants, Siddha, Cancer and Antioxidants.

**INTRODUCTION**

Human beings in different regions of the world have their own traditional form of healing method which are firmly rooted in their culture and history (WHO, 2000). Recently, WHO defines Traditional Medicine (TM) as including diverse health practices, approaches, knowledge and beliefs incorporating plant, animal, and / or mineral based medicines, spiritual therapies, manual techniques and experiences applied by single or in combination to maintain well-being, as well as to treat, diagnose or prevent illness (WHO, 2013, 2002). Siddha system of medicine is one of the traditional Indian medical system which is flourished in the Southern part of India especially, Tamil Nadu (Thirunarayanan, 2012; Pesek et al., 2009; Prasad, 2002).

The natural plants have been used in the *Siddha* system to treat various diseases for thousands of years. Also, it helps to prevent or suppress as well as successful outcome of various diseases and tumours. The word 'Siddhi' means attainment of perfection. Ancient Siddhars have been prescribed many formulations viz., single drugs, compound mixed drugs (*Chooranam*), *Chendhooram*, medicated oils (*thylams*), liquids (*Manapagu*) and decoctions (*Kudineer*) which are prescribed on the basis of classical literature written in Tamil Language. The Tamil names like *Kandamaalai Rogapadalam* (Lymphoma like illness), *Kiranthinoigal*, *Mega katti*, *Putrunoi* (Tumour), and *Vippuruthi Noipadalam* (Carcinoma like illness) revealed in Siddha literatures which are resemblance name to the cancer like diseases (Lekha et al., 2018). Cancer is considered as one of the major Non Communicable Diseases (NCD) in the developing countries. There are various triggering factors viz., urbanization, highly polluted environment, and changes in life-style, which are directly or indirectly playing major role to the development of cancer, like many other diseases. The term cancer indicates that a group of diseases which involves abnormal cell growth with the potential to invade or spread to other parts of the body. Also, it is a group of diseases caused by loss of cell cycle control. The clinical feature of cancer includes excessive growth in specific area of the body, abnormal bleeding, and changes in bowel movements. It is mainly caused by both external and internal factors. However, 90-95% of cancers are due to only environmental factors viz., tobacco, excessive alcohol, and certain infections such as hepatitis B, radiation, UV rays, stress, obesity, lack of physical exercises, poor diet and pollution (Anand et al, 2008). The internal factors viz., inherited mutations, hormones, immune conditions and mutations that occur from metabolism which are played crucial role in the development of cancer. There are more than hundred types of cancer existing nowadays. In the ancient civilization, the written records of Egyptian Edwin Smith Papyrus in 1600 BC describes about breast cancer (Faguet, 2015). Hippocrates 460 BC to 370 BC describes various kinds of cancer referring to them with Greek word *Karkinos* (Crab or Cray fish). The name comes from the appearance of the cut surface of solid malignant tumour with veins stretched on all sides as the animal crab (Faguet, 2015). Siddhars were the great scientists who exposed the reality of nature through their observation, continued experiences, and spiritual knowledge threw enlighten the illness of new growths or lumps, explained the therapeutic aspects in the form of condensed poems.

#### **Review of disorders in Siddha system that resemblance to cancer diseases**

The condensed poems in classical Siddha literature provide ample indication that cancer was known to ancient Siddha practitioners. This review is to explore the descriptions of cancer in the classical texts. It also reveals the clinical features of cancer which mentioned in the early Siddha Literature. Particularly, various names viz., *Vippuruthi noi padalam* (Carcinoma like diseases), *Mega Katti*, *Kandamaalai Roga Padalam* (Lymphoma like illness), *Kiranthi Noigal*, and *Putru Noi* (tumour) resembled to cancer occurred in various organ system. Some diseases of male and female genitalia also described in the clinical outcome of cancer. According to the classical Siddha Literature, *Vippuruthi Noipadalam* (carcinoma like disease) is being classified into seven types based on the pathogenicity, site of lesion, stages and severity of lesion (Thiyagarajan, 1976). Specifically, in the site of lesion, *Vippuruthi* (carcinoma like disease) is classified as *Karppavippuruthi* (uterine), *Kuvalaivippuruthi* (genitalia), and *Chanthuvippuruthi* (abdomen). The literature also explains about the curable and incurable types of *Vippuruthi Noi* (Thiyagarajan, 1976; Lekha et al, 2018). *Karppavippuruthi* indicates the lump below the umbilicus, rupture and discharge of blood and a thick yellowish or greenish opaque liquid produced in the infected tissue, which consisting of dead white blood cells, bacteria with tissue debris and serum from the lesion. *Kuvalaivippuruthi* described as swelling in scrotum, pain and pricking sensation in genitalia. *Chanthuvippuruthi* is being distinguished by lump in the side of abdomen, severe pain and burning sensation, gradual redness and hardness of lump. *Vathavippuruthi* describes tongue shaped lumps, hepatomegaly, fever, vomiting, diarrhoea, pain and delirium; mentioned as incurable. *Pitthabippuruthi* have the features of blood vomiting, itching in the body, delirium and abdominal pain. *Chethmavaippuruthi* is characterized by fever, generalized oedema and green coloured stools; also mentioned as incurable. *Oduvippuruthi* is being expressed by red and white rashes, lump in the body, pain in the bone, ulceration in the body (Thiyagarajan, 1976; Lekha et al, 2018).

*Kiranthi Noigal* explained in certain Siddha literatures as capsular lesions characterized by burning sensation, rashes on the skin, mass, rupture and ulceration. The pathogenicity of *Kiranthi Noigal* as the aggravation of *Iyya* humour that combines with *Vali* humour and then gradually affecting the body humours viz., *Saaram* (body fluid), *Chenneer* (blood), *Oon* (muscle) and *Kozhuppu* (fat) which expresses the nodular lesions in the body (Mudhaliar, 1993).

### Anti-cancerous Siddha Medicinal Plants

#### 1. *Azadirachta indica* – *Veppilai*

Neem (*Veppilai*) is an evergreen tree that belongs to Meliaceae family, genus *Azadirachta*. It also named as Nimba, Holy tree, Vembu, Arishtha, Indian neem tree, wonder tree, divine tree. It is a medicinal plant of Indian origin, a tree with more of 140 isolated compounds and at least 35 biologically active principles that have shown an important influence as cancer suppressors by interfering with the carcinogenesis process (Moga et al., 2018). *A. Indica* majorly helps to prevent gynaecological cancers, specifically ovarian and breast cancer (Moga et al., 2018).

#### 2. *Catharanthus roseus* – *Cutukattu malli*

Periwinkle (*Cutukattu malli*) is an herbaceous plant growing to 1 m tall. The flowers are white to dark pink with a dark red centre, diameter with five petal like lobes. The botanical names of Periwinkle as *Vinca Rosea* (*Catharanthus roseus*), and its family name as Apocynaceae. The Tamil name of Periwinkle is *Cutukattu malli*, or *Cutukattuppu*. The anticancer alkaloids Vinblastine and Vincristine are derived from stem and leaf of Periwinkle which helps to inhibit growth of some human tumours. Vincristine as another alkaloids help to prevent or treatment of leukemia in children (Banskota, 2002; Wang, Zheng and Weng, 2004; Aruna et al., 2015). Periwinkle not only have alkaloids which prevent or treat cancer, but also have active compounds to treat diabetics, helminthic infections (Agarwal et al., 2011), ulcer (Babulova, Machova & Nosalova, 2003), hypotension (Pillay, Nair, Kumari, 1959), diarrhea (Rajput, Nair, Chauhan, 2011), wound healing (Nayak, Anderson and Pereira, 2007), hypolipidemic (Yogesh Patel et al., 2011), and memory enhancement (Sekar, 1996).

#### 3. *Cynodon dactylon*– *Arugam Pul*

*Cynodon dactylon* Pers. is a perennial grass, belongs to the family of Poaceae (Harlan, 1970). The methanol extract of *Cynodon dactylon* possessed significant antitumor activity and hepatoprotective effect against Ehrlich ascitic Lymphoma (ELA) in Swiss albino mice and brought back the altered levels of the haematological parameters and liver enzymes (Krishnamoorthy and Ashwini, 2011; Marappan and Annapoorani, 2012). Aqueous and ethanol extract of *C. dactylon* (500 µg/ml) were investigated for their antibacterial activity against gram positive bacteria and gram negative bacteria using disc diffusion, well in agar and micro dilution method. *E. coli*, *B. subtilis*, *S. aureus* and *A. hydrophila* were more susceptible in the ethanol extract and no result was found in aqueous extract (Kaleeswaran et al., 2010). Also, Alcoholic extract of *Cynodon dactylon* was evaluated at 200, 400, and 600 mg/kg, orally for pylorus ligated and in domethacin induced gastric ulcer models in albino rats. Alcoholic extracts at 400 and 600 mg/kg showed significant ( $p > 0.001$ ) antiulcer activity, comparable to the standard drug ranitidine (Patil, Jalalpure, Prakash and Kokate, 2003).

#### 4. *Aegle marmelos* – *Vilvam*

*Aegle marmelos* (L.) Corr. Serr is one of the important plant with several medicinal and nutraceutical properties. It has commonly known as wood apple plant. Pulp and seeds of *Aegle marmelos* fruit contain Lupeol, showing strong positive action against breast and thyroid cancer. Lupeol affects the gene expression of MDA-MB-231 breast cancer cell line and inhibits cell proliferation. Adverse effects of both radiotherapy and chemotherapy get diminished by antioxidant property of *Aegle marmelos* (Pradhan, Mohapatra and Pradhan, 2015; Lekha et al., 2018). Further, in the phytochemical studies, there are different organic extracts of the leaves of *Aegle marmelos* have been reported to possess alkaloids, cardiac glycosides, terpenoids, saponins, tannins, flavonoids and steroids (Venkatesan, Karrunakarn, Kumar and Swamy, 2009; Sivaraj, Balakrishnan, Thenmozhi and Venkatesh, 2011).

#### 5. *Zingiber Officinale Roscoe* – *Sukku*

*Zingiber officinale* Roscoe commonly known as ginger belongs to the family of Zingiberaceae. It originated from china and spread to India, South East Asia, West Africa and the Caribbean (Weiss, 1997; McGee, 2004). However, India is the biggest producer of ginger in the world.

It has several medicinal properties to cure or treating different diseases, particularly, curing heart problems, treat stomach upset, diarrhea, and nausea (Shukla and Singh, 2007).

Ginger has been found to anti-cancerous activity as well as it helps to inhibit the growth of human colorectal cancer cells (Bode, 2003). Specifically, it has been examined that the effects of hot water extract of ginger rhizome on spontaneous mammary tumorigenesis. When the extract of ginger given to the mice at the rate of 0.125% in the drinking water, the development of mammary tumours (breast cancer) was significantly inhibited (Nagasawa, Watanabe and Inatomi, 2002). Further, Gingerols which is the active phytonutrients in ginger, helps to kill ovarian cancer cells by inducing apoptosis and autophagocytosis (Rhode, Huang, Fogoros, Tan, Zick, and Liu, 2006). Also, several studies have shown that ginger has promising effect for liver cancer, breast cancer, prostate cancer and colorectal carcinomas through its diverse pharmaceutical mechanisms (Karna et al., 2012; Pour et al., 2014; Mekuriya and Mekibib, 2018).

#### **6. *Piper nigrum* L. - Milagu**

*Piper nigrum* is a valuable medicinal plant which is commonly known as Pippali in Sanskrit, Milagu in Tamil and Peppercorn, White pepper, Green pepper, Black pepper in English. Historically black pepper called as "The King of spices" and "The Black Gold". It is a dried unripe berries and it gives peppercorn. It contains major pungent alkaloid Piperine (1-peperoyl piperidine) which is known to possess many interesting pharmacological actions (Damanhour & Ahmad, 2014). Piperine exhibits diverse pharmacological activities viz., antihypertensive and anti-platelets (Taqvi, Shah, & Gilani, 2008), antioxidants, antitumor (Manoharan, Balakrishnan, Menon, Alias & Reena, 2009), anti-asthmatics, anti-inflammatory, antidepressants (Li et al., 2007), antibacterial, antifungal and insecticidal etc. It is also known to enhance cognitive action and fertility (Wattanathom, Chonathompikunlert, Muchimapura, Priprem and Tankamnerdthai, 2008).

*Piper nigrum* had been reported to inhibit tumours formation in various experimental studies. Many studies revealed that Piperine reduce the lung cancer by altering lipid peroxidation and by antioxidative protection enzymes activation (Selvendiran and Sakthisekaran, 2004; Ahmad et al., 2010, 2012).

#### **7. *Piper longum* L. - Thippili**

*Piper longum* Linn., is used in traditional medicine by many people in Asia and Pacific islands particularly in Indian medicine (Shoba et al., 1998). It has been reported as good remedy for treating gonorrhoea, menstrual pain, tuberculosis, sleep problems, respiratory tract infections, and arthritic conditions (Singh, 1992). Also, it treats relaxation of muscle tension and alleviation of anxiety (Singh and Blue Mental, 1997).

Recent research study reported that alcoholic extract of *Piper longum* (10 mg/dose/animal) as well as piperine (1.14 mg/dose/animal) could inhibit the solid tumour development in mice induced with DLA cells and increase the life span of mice bearing Ehrlich ascites carcinoma tumour to 37.3 and 58.8%, respectively (Sunila & Kuttan, 2004). Also, immunomodulatory activity of *Piper longum* and piperine may be due to the combined action of humoral and cell-mediated immune responses. Hence, the results indicated that the *Piper longum* and piperine could act as a non-toxic immunomodulator which possess antitumor property (Sunila and Kuttan, 2004). Another study investigated the therapeutic and medicinal properties of *Piper longum*. The anticancer activity of the different extracts of fruits of *Piper longum* on human lung epithelial adenocarcinoma cell line (HCC-827) has been assessed in vitro using 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT assay). The results were revealed that the potency of plant extracts to inhibit the cancerous growth in terms of decrease in viable cell count as compared to the control value. Also, the inhibition of the growth of human lung epithelial adenocarcinoma cell line (HCC-827) has been found to be dose dependent (Sawney, Painuli and Chauhan, 2011).

#### **8. *Phyllanthus emblica* - Nelli**

It is one of the most common medicinal plants used in traditional proprietary medicines particularly Ayurveda and Siddha. *Phyllanthus emblica* is also known as *Emblica officinalis*. It belongs to the family of Euphorbeaceae. The common name of this medicinal plant in English as Indian gooseberry and in Tamil language it called as Nelli.

*Emblica officinalis* has been used as medicine and nutritious tonic, possessing vital amino acids and vitamins.

It has rich source of vitamin C and minerals as compared to other citrus fruits (Variya et al., 2016). Also, the extract of *Phyllanthus emblicato* be utilized as an anticancer agent over the past two decades (Zhao, Sun, Marques and Witcher, 2015). There are four possibilities that Indian gooseberry can prevent cancer. First, it has potent free radical scavenging activities that might prevent reactive oxygen species induced DNA damage and oncogenesis (Hazra, Sarkar, Biswas and Mandal, 2010; Majeed, Bhat, Jadhav, Srivastava and Nagabhushanam, 2009). Secondly, the extract has properties allowing it to reduce the levels of cytochrome enzymes in liver cells (Banu, Selvaendiran, Singh and Sakthisekaran, 2004). Third, the extracts of *Phyllanthus emblica* have anti-inflammatory activities that might prevent inflammation related cancers (Golechha, Sarangal, Ojha, Bhatia and Arya, 2014). Finally, *Phyllanthus emblica* possess potent anticancer activity (Baliga and Dsouza, 2011; Yang & Liu, 2014).

#### 9. *Andrographis paniculata* – Nilavembu

*Andrographis paniculata* belongs to the family of Acanthaceae. The aerial parts of the plant like leaves and stems are used to extract the active phytochemicals (Agarwal, 2015). The plant extracts showed hepato-protective (Trivedi and Rawal, 2001), vermifugal (Siddhartha, Archana, Jinu and Pradeep, 2009), anti-inflammatory (Dao-wen and Hua-yue, 1993) and immune enhancer activity (Puri et al., 1993).

Different extracts of *A. Paniculata* leaves were toxic to cancer cell lines (Rajeshkumar et al., 2015). Anticancer activity of water, ethanol and acetone extracts of *A. Paniculata* depends on the solvent used for extracting phytochemicals which present in the leaves of *A. paniculata*. Ethanol extract shows more inhibition of cells when compared other extracts, may due to the presence of alkaloids and flavonoids. Minimum inhibitory concentration was observed based on the percentage of cell viability is 50% at 200 µg/ ml for ethanol extracts and 250 µg/ml for water and acetone extracts against IMR-32 cell lines. Based on this results, water, ethanol and acetone extracts of *A. paniculata* leaves potentially to be developed as herbal medicine which replace the chemotherapeutic agent against IMR-32 and HT-29 cancer cell lines (Rajeshkumar et al., 2015). Also, Dichloromethane fraction of methanolic extract of *A. paniculata* has strong anticancer activity against colon cancer (Umadevi, Kumar, Bhowmik and Duraivel, 2013).

#### 10. *Solanum trilobatum* – Thoothuvalai

*Solanum trilobatum* Linn., is one of the important medicinal plants extensively used in the Indian traditional medicine and also most commonly available herbs in southern India. It belongs to the family of Solanaceae. Also, it is well known in Ayurveda and Siddha system. There are some synonym names of *Solanum trilobatum* in Tamil language like Nittidam, Sandunayattan, and Surai (Sahu, Rath, Koul and Khosa, 2013). It has been used in herbal medicine to treat various diseases like respiratory problems, bronchial asthma and tuberculosis (Ramakrishna, Ramana, Mihira and Kumar, 2011). The roots, berries and flowers are used for curing cough (Gandhiappan and Rengasamy, 2012). The recent research investigated that check the anti- microbial and anti-cancer activity against bacterial pathogens (*E. coli*, *Staphylococcus aureus*, *Pseudomonas*, *Klebsilla*, *Bacillus*) and fungal pathogens (*A. niger*, *A. flavus*, *Fusarium*) by using the plant extracts which were prepared in ethanolic extracts. The leaf of *S. trilobatum* were used for antimicrobial analysis, out of the best activity was observed *E. coli* with maximum zone of inhibition. On the other hand, maximum antifungal activity was recorded with *Aspergillus niger*. The phytochemical analysis of *S. trilobatum* were performed such as alkaloids, flavonoids, sugars, glycosides, spannins, tannins, proteins, aminoacids and terpenoid were also analysed. Anti-cancer activity showed the least MIC value at concentration ranging from 2.7µg/ml to 60µg/ml. The results were clearly evidenced that the *S. trilobatum* extract are very useful improving survival and quality of life inpatient suffering from advanced cancer (Pratheeba, Rani and Ramesh, 2014).

#### 11. *Terminalia Chebula* – Kadukkai

*Terminalia Chebula* belongs to the family of Combretaceae and commonly known as 'Black Myrobalan'. It has easily found in India and in many Asian countries. *Terminalia Chebula* is called as 'king of medicines' in Ayurveda because of its excellent powers of healing. Traditionally, it is used for anti-diabetic, anti-inflammatory, antibacterial, antifungal, hyper lipidemic activity and jaundice (Kirtikar and Basu, 1995, 1987).

In a recent study investigated to evaluate the in-vivo and in-vitro antitumor activity of *Terminalia Chebula* extract against EAC (Ehrlich Ascites Carcinoma) in mice. The ethanolic extract of *Terminalia Chebula* fruit significantly inhibited tumour in EAC induced cancer in swiss albino mice. This activity involves restoration of hematopoietic parameters, reduction in tumour volume and increased lifespan of the animals (Ahuja, Agarwal and Mukerjee, 2013). Hence, the ethanolic extract of *Terminalia Chebula* is a good one to treat cancer (Ahuja, Agarwal and Mukerjee, 2013; Priscilla and Jasmine, 2016).

## 12. *Terminalia bellerica* – *Thandrikkai*

The generic name of 'Terminalia' comes from Latin word 'terminus' or 'terminalis' (ending). *Terminalia bellerica* belongs to the Combretaceae family. It has been used traditionally to treat hepatitis, bronchitis, asthma, dyspepsia, piles, diarrhoea, coughs, and menstrual disorder (Deb, Barua and Das, 2015). Pharmacological investigations have reported anti-oxidation, anti-bacterial, anti-convulsive, hepatoprotective, cholesterol-reducing, hypoglycemic, anti-myocardial-necrosis, and anti-cancer effects (Li et al., 2018; Nampoothiri et al., 2011; Sawant, Pandita and Prabhakar, 2010).

In a recent study, UPLC-ESI-MS<sup>n</sup> revealed 40 polyphenols in an EA extract of *T. bellerica*. By using cytotoxicity assays, flow cytometry and western blotting, founded that the EA extract *T. bellerica* exerted the strongest anti-cancer activity *in vitro* among the three isolated extracts (CH<sub>2</sub>Cl<sub>2</sub>, EA and H<sub>2</sub>O) particularly for ZR-75-1 and Colo-205 cells. Further, the EA extract mediated and executed apoptotic cell death at early and late stages by inactivating the essential target proteins required for the growth and division of cells (Li et al, 2018). Hence, the toxicity seen in ZR-75-1 and Colo-205 cells provides support for the idea that polyphenols in the EA extract to further study for discovery of anti-cancer agents, specifically against breast and colon cancer (Li et al., 2018; Lee et al., 2016; Zhang et al., 2013).

### Various other anti-cancerous herbs

Various other medicinal plants have been studied in various *in vivo* and *in vitro* experimental models of cancer and have shown significant inhibition of cancer cell proliferation (Chandra and Nagani, 2013). For instance, *Abrus precatorius* in Yoshida's sarcoma, carcinoma and Dalton's lymphoma as cites cancer (Sivakumar and Alagesaboopathi, 2008; Reddy and Sirsi, 1969); *Cymbopogon flexuosus* in Ehrlich as cites carcinoma and leukemia (Sharma et al., 2009); *Ocimum gratissimum* in breast cancer (Makker et al., 2007); *Punica granatum* in prostate cancer (Malik et al., 2005); *Moringa oleifera* in skin cancer and Human multiple myeloma cancer (Verma et al., 2009; Guevara et al., 1999); *Allium sativum* insarcoma 180 (Ejaz, Woong and Ejaz A, 2003); *Asparagus racemosus* in liver cancer (Agarwal et al., 2008; Kamat, Bloor, Devasagayam and Venkatachalam, 2000); *Mangifera indica* in lung cancer (Rajendran, Ekambaram & Sakthisekaran, 2008); *Nigella sativa* in colon cancer (Johar et al., 2008; Swamy and Tan, 2000); *Tephrosia purpurea* in oral carcinoma (Kavitha and Manoharan, 2006); *Tinospora cordifolia* in Ehrlich's ascites carcinoma (Rao, S.K., Rao, P.S. and Rao, B.N., 2008); *Withania somnifera* in skin carcinoma (Padmavathi et al., 2005); *Woodfordia fruticosa* insarcoma 180 (Kumaraswamy & Satish, 2008; Yoshida et al., 1990); *Beta vulgaris* in skin and lung cancer (Jiratanam & Liu, 2004; Kapadia, Tokuda, Konoshima and Nishino, 1996); *Emblica officinalis* in liver cancer (Sultana, Ahmed & Jahangir, 2008; Anila & Vijayalakshmi, 2003); *Ephedra sinica* in Murinemelanoma (Nam et al., 2003); *Ocimum sanctum* in skin cancer (Rastogi et al., 2007); *Viscum album* in Ehrlich's carcinoma (Cebovic, Spasic and Popovic, 2008; Ucar, Karagoz and Arda, 2006); *Jatropha curcas* in skin cancer (Yan et al., 2008; Hirota et al., 1988); *Annona reticulata* in kidney and colorectal carcinoma cancer (Mondal, Mondal NB and Mazumder, 2007; Baskar, Rajeswari and Kumar, 2007); *Bacopamonniera* in sarcoma (Rohini and Devi, 2008); *Berberis vulgaris* in breast cancer (Tomosaka et al., 2008); *Bidens pilosa* in cervix cancer (Sundararajan et al., 2006; Abajo et al, 2004); *Citrullus colocynthis* in breast cancer (Spitz, Grossman, Dovrat, Gottlieb & Bergman, 2007; Spitz, Bergman and Grossman, 2007); *Crocus sativus* in cervical epithelioid carcinoma cancer (Abdullaev, 2002); *Curculigo orchoides* in breast cancer (Singh & Gupta, 2008); *Ipomoea aquatica* in larynx epithelial carcinoma and small lung carcinoma cancer (Prasad et al., 2005); *Lantana camara* in lung carcinoma (Raghu et al., 2004); *Calycotris floribunda* in colon cancer (Ali et al., 2008); *Cedrus deodara* in acute lymphoblastic leukemia, prostate and lung cancer (Sharma et al., 2008; Tiwari, Srinivas, Kumar and Rao, 2001); *Curcuma longa* in colon cancer

(Lee et al., 2008; Hsu, Weng, Lin & Chien, 2007); *Ipomoea squamosa* in ovarian cancer (Cao et al., 2007); *Melia azadirach* in lung cancer and glioma cancer (Wu et al., 2009; Szewczuk, Mongelli and Pomilio, 2006); *Morinda citrifolia* in colon cancer (Kamiya et al., 2009; Anekpankul et al., 2007); *Polyalthia longifolia* in colon and leukemia HL-60 cancer (Verma et al., 2008); *Psidium guajava* in prostate carcinoma cancer (Chen et al., 2007); *Tragia involucrata* in carcinoma cancer (Joshi, Gopal and Kumari, (2011); *Semecarpus anacardium* acute myeloblastic leukaemia, chronic myelogenic leukaemia, breast adenocarcinoma, cervical epithelial carcinoma and colon carcinoma cancer (Nair et al., 2009; Chakraborty, Roy, Taraphdar & Bhattacharya, 2004).

## CONCLUSION

To conclude, some medicinal anticancer plants of Indian origin as well as other countries have been revealed significant treatment for curing cancer from available research sources. These traditional medicinal herbs possess good antioxidant properties, which inhibit growth of cancer cells as well as they have the properties of anticancer activities. However, nearly all of the studies which focused on single herb study and rarely found that herbs which made combination with other herbal plants (Combination of Herbs / Compound Herbs).

On the basis of *siddha* literature and modern science, to develop innovative compound drugs are needed nowadays to cure or suppress various types of cancer diseases. Also, it is unavoidable to the present situation to find out particular herbs or compound herbs, have more effective to the prevention of cancer like diseases. Particularly, in India, the availability of herbal plants are more as compared to other countries which aid to the researchers to explore innovative *siddha* drugs to cancer care.

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