

Role of Ayurveda and Ayurvedic Herbs in Malignancy - A Review Article

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ABSTRACT

Malignancy originates due to various unethical life style and food taking habits. In ayurveda the term arbud is similar to word malignancy. Aggravation of vata dosha and suppression of kapha doshas or both the doshas interacting with one another may result in proliferation of cells. However a part of abnormal cell division resulting in benign or malignant tumors. In 2022 the world is running behind alternative medicines like Ayurveda not only to cure the malignancy but also to minimize the side effects due to chemotherapy and to prolong lifespan of affected patients. Hence it is very important to adopt Ayurvedic treatment in malignancy as a complete regimen as well as along with chemo or radiation therapy. In the present article a complete review about various information regarding arbuda and ayurvedic herbs is brought under single roof so as to help the future researchers to use the incorporated details about arbuda (malignancy).

KEYWORDS: Ayurved, malignancy, arbuda, cancer, herbs

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Introduction

Ayurveda is one of the oldest medical sciences. Each system of medical science has its own concept and hypothesis in the world. Ayurveda described all the aspect of human life. In today's world Malignancy is one of the most notorious and fatal disease in human community. Ayurvedic texts that have remarkable similarities with modern interpretation of malignancy is Arbuda, hence in Ayurveda the term Arbuda has been coined for malignancy. Arbuda is one of the surgical diseases and was explained in detailed by Sushruta the pioneer of surgery¹. It was prevalent during the Vedic period. In Atharvaveda there is reference of Arbuda and its management².

This article includes ayurvedic concept of malignancy with special reference of Arbuda, underlying its scientific principles involved in treating these

conditions with the use of natural herbs. Also the another aim is to reviews the available literature regarding Arbuda and related researches on Ayurvedic herbs that has been used in malignancy management. Concept of different treatment strategies for various cancers has been described here in this article.

It could be better treatment to use an integrated approach in malignancy management, hence global awareness and encourage implementation of ayurvedic treatment and drugs for combating cancer are another point of interest in this article.

Concept and Clasification of Malignancy in Ayurveda

Ancient Indian practionars were not unaware about the tumor, rather they presented their views regarding

cancer as swelling on the body surface superficially or situated in deeper structure in relation to different systems and organs or sometimes presented as chronic non-healing ulcers.

The earliest and fore most record could be cited in *Atharva Veda* (2200 BC)³. During this period the disease was probably described under the heading of 'Apachi' or 'Apachit' which refer to the present knowledge of various texts of Indian medicines as multiple lymph nodes swelling.

Later similar description has been depicted by *Acharya Sushruta* (200 BC)⁴. According to them this Apachi or multiple lymph node swelling has been cited at different places, viz. neck, axilla and groin. Superficial Swellings have been categorized under the heading of *Arbuda* whereas non-healing ulcers as *Asadhya Vrana*. Similarly malignancies of deeper structures have been described as *Gulma*. The various diseases described in *Ayurveda* may be considered as malignant.

Sushruta and *Charaka Samhita*, two well-known *Ayurvedic* classics, have described cancer as inflammatory or non-inflammatory swelling and mention them as either *Granthi* or *Arbuda*. *Acharya Madhava* while describing *Arbuda* opines that the vitiated *Dosha* afflict the *Mamsa* and *Rakta* both to produce a swelling. *Sushruta Samhita*, *Charaka Samhita* as well as *Astanga Hridaya*, which was written much later, give very detailed description about the subject.

गात्रप्रदेशे क्वचिदेव दोषाः सम्मूर्च्छिता मांसमभिप्रदूष्य ॥

वृत्तं स्थिरं मन्दरुजं महान्तमनल्पमूलं

चिरवृद्ध्यपाकम् ॥

कुर्वन्ति मांसोपचयं तु शोफं तमर्बुदं शास्त्रविदो वदन्ति ॥

(Su.Ni.11/13 - 14)

The *Doshas* having got vitiated in any part of the body and afflicting the *Mamsa* produce swelling in the later. It is circular, fixed, slightly painful, big in size, with broad based, slowly growing. It does not suppurate; same is called *Arbuda* by the experts of this science. *Acharya Sushruta* described six types of *Arbuda*. He has also separately described *Talvarbuda* in *Mukha roga*. *Acharya Vagbhatta* described two types of *Arbuda* in *Mukha roga* which are *Jalarbuda* and *Talvarbuda*.

Practically it is very difficult to define *Ayurvedic* classification of neoplasm in relation to *Tridoshas*. Yet an classification of neoplasm can be made as given below:-

Group I: In this group those diseases can be considered which has been named as clear malignancy like *arbuda* and *granthi*, e.g. *mamsarbudam*(melanoma) and *raktarbuda* (leukaemia), *mukharbuda* (oral cancer), etc.

Group II: In this group those diseases can be considered which has been find out as incurable lesion like *tridosaj gulmas* (abdominal tumours like carcinomas of the stomach and liver or lymphomas).

Group III: In this group those diseases can be considered which has some kind of possibility of malignancy like *Visarpa* (erysipelas), *asadhya kamala* (incurable jaundice) and *nadi vrana* (sinusitis)

There are some examples of this division as given in *ayurvedic* texts:-

1. Diseases which can be clearly defined as malignancy can be listed as follows:

- *Arbuda*
- *Mamsa Arbuda* (A.H.U. 21/7)
- *Jala Arbuda* (A.H.U. 21/10)
- *Asadhya Vrana* (Su.Su. 23/12)

2. Diseases which can be a considered as malignancy.

- *Alasa* (Su. Ni. 15/10)
- *amsa Utsanna Mahayoni* (Ch.Ci. 30/36)
- *Mamsa Kachhapa* (Su.Ni. 15/10)

3. Possibility of Malignancy that cannot be ruled out.

- *Asadhya Pradara* (Ch. Chi. 30/222-223)
- *Granthi*

Aetio-pathogenesis of malignancy in Ayurveda

In *ayurveda* there are concept of *tridosha*, when these three *dosha* aggravated by lifestyle errors, unhealthy foods, poor hygiene and bad habits, it leads to the manifestation of malignancy. There are many factors responsible for the vitiation of *doshas*, some of those has been discussed here.

- A. *Vata aggravating factors*: excessive intake of bitter, pungent, astringent, dry foods and stressful conditions.
- B. *Pitta aggravating factors*: excessive intake of sour, salty, fried foods and excessive anger.
- C. *Kapha aggravating factors*: excessive intake of sweet, oily food and sedentary nature.
- D. *Rakta aggravating factors*: excessive intake of acid or alkali containing foods. Fried and roasted foods, alcoholic beverages, sour fruits are some examples. Excessive anger or severe emotional upset, sunbathing or working under scorching sun or near fire and hot conditions, etc. are some other causes.

- E. *Mamsa aggravating factors*: excessive use of exudative foods like meat, fish, yoghurt, milk and cream. Behaviours leading to exudation like sleeping during the day and overeating are some of the causes for pathogens invading the fatty tissues
- F. *Medo aggravating factors*: excessive intake of oily foods, sweets, alcohol and lazy attitude

Thus, pathogenesis in Ayurveda is explained on the basis of *Tridoshas*, *Agni* or *Pitta*, which is present in each and every cell. These are responsible for all type of metabolic activity in human body. There are concept of seven dhatus in ayurveda, each dhatu has its own agni⁵. The decreased state of *dhatwagni* that means deranged metabolism, will result in excessive tissue growth. Probably Malignancy is originated by aggravation of *vata* forces and suppression of *kapha* forces, resulting in proliferation.

Sushruta has proposed six stages in the pathogenesis of all diseases. This six stages pathogenesis can be explain in malignancy as given below⁶:-

1. *Sanchaya*: in this stage there could be some kind of early stages of localized tumor. Usually there are no symptoms in this stage.
2. *Prakopa*: in this stage there could be growth in size of tumor or localised metastatic growth of tumours as seen in adjacent lymph node growth in any organ malignancy.
3. *Prasara*: in this stage there could be movement of metastatic cells one place to another place
4. *Sthana samsraya*: in this stage there could be complete metastasis of that primary tumor to one or more sites in body, that will be known as secondary growth.
5. *Vyakti*: in this stage there could be expression of clinical signs and symptoms of particular malignancy.
6. *Bheda*: in this stage there could be differentiation of growth occurs on the basis of histopathology. One can identify the type and severity of malignancy.

Ayurvedic Treatment of Malignancy

The treatment of cancer was existed ever since the Vedic period, As mentioned in *Arthava Veda* (2000BC) in *Kaushika Sutra* there is vivid description of treatment of the above disease⁷. In *Samhita* period (300BC-400BC) especially *Agnivesha Samhita* the line of treatment postulated was *Agni Karma* (heat therapy) *Shashtra Karma* (surgery) and application of *Kshara* (caustic alkali). *Sushruta Samhita* has given clear cut details of treatment of *Arbuda* specifically and precisely⁸.

The treatment that has been advised in *Ashtanga Hridaya* is similar to *Sushruta's* treatment. The chemical treatment with use of *Rasa Aushadhi* in *Arbuda* which are dated back to 800 to 1400 AD and also in *Bhaisajya Ratnawali*, which has given several treatment for *Arbuda*⁹.

Sushruta described *arbuda* as an untreatable disease. The therapeutic approach of Ayurveda has been divided into four categories as *Prakritisthapani chikitsa* (health maintenance), *Roganashani chikitsa* (disease cure), *Rasayana chikitsa* (restoration of normal function) and *Naishthiki chikitsa* (spiritual approach).

Other methods of treatment include, *dhatwagni chikitsa* (correction of metabolic defects), *vyadhipratyanika chikitsa* (specific anti-cancerous drugs) and *lakshanika chikitsa* (symptomatic treatment).

Sodhana chikitsa (purification process), which eliminates vitiated *doshas*, have been primarily used for medical management of cancer. Shaman *chikitsa* pacifies *dosha* and gradually relieves the disease. In *Rasayana prayoga* (immunotherapy), certain poisonous plants, mercury like metals and animal products were rendered non-toxic and harmless by the use of alchemy and are used as rejuvenating drugs.

Surgical cancer management in *Ayurveda* include the principles of fomentation by means of external application, cleansing by internal medication, treatment to liquefy the contents of the swelling, opening the tumour surgically for evacuation of its contents, cauterisation to avoid recurrence and post-operative care for healing the wound.

Cauterisation with alkalis and acids and other parasurgical procedures were performed with herbal and mineral medicines. *Arbuda* is excised completely from its deep root seat and cauterisation done to destroy any of the remaining cell particles.

Treatment of malignancy

There are various Ayurvedic Drugs described in ayurvedic texts employed in treatment of various cancers are given below –

*Granthi*¹⁰

Vatika granthi - *Helloborus niger*, *Tinospora cordifolia*, *Clerodendron serratum*, *Aegle marmelos*, *Hoya viridiflora*, *Elephantopus scaber*, *Soymida febrifuga* and *Gynandropis pentaphylla* were applied locally

Paittika granthi - *Terminalia chebula* powder with either grape or sugarcane juice were used orally. The paste of *Glycyrrhiza glabra*, *Eugenia jambolana*,

Terminalia arjuna or *Calamus rotang* were used of external application

Kapaja granthi - Paste of *Capparis spinosa*, *Capparis sepiaria*, *Agati grandiflora*, *Lagenaria vulgaris*, *Premna herbacea*, *Pongamia glabra*, *Musa sapientum* and *Randia dumetorum* used in local application

Arbuda¹¹

Classical procedures - Fomentations, cauterisation, scraping, bloodletting, medicated enemata and other surgical procedures. Traditional treatment Habitual intake of *Basella rubra* or application of alkali preparation of *Musa paradisiaca*, *Conch shell ash*, *Elaeocarpus tuberculatus*, *Sulphur*, *Potassium carbonate*, *Embelia ribes* and ginger were used to cure *arbuda*

Vataja arbuda - Paste of *Benincasa cerifera*, *Cucumis memordica*, *Cocos nucifera*, and *Eranda beeja*, *Ricinus communis* along with butter or milk were applied

In various journal many of the ayurvedic herbs has been described which are usefull in malignancy, a list of these herbs has given below¹²⁻³⁹ –

Pittaja arbuda Tumours were treated with leaves of *Ficus glomerata*, *Tectona grandis*, and *Elephantopus scaber* repeatedly and then with a honey mixed fine paste of *Aglaja roxburghiana*, *Caesalpinia sappa*, *Symplocos racemosa*, *Terminalia arjuna*, *Xanthium strumarium* was applied

Kaphaja arbuda - After surgical removal of tumour, a drug that remove doshas from both the ends (vomiting and purgation) were employed. Then for purification, a decoction of *Clitoria ternatea*, *Jasminum grandiflorum* and *Nerium odorum* leaves was used. For the postoperative care, oil cooked with *Premna herbacea*, *Embelia ribes*, *Cissampelos pareira* was applied

Medoja arbuda - *Curcuma domestica*, *Triticum sativum*, *Symplocos racemosa*, etc. were made into a powder and applied externally by mixing them with honey. Oil from *Pongamia glabra* were used of internal administration

S. no	Botanical Names	Family	Active constituent
1	<i>Glycyrrhiza glabra</i>	Leguminosae	Glycyrrhizin
2	<i>Ginkgo biloba</i>	Ginkgoaceae	Ginkgolide-B, A, C and J
3	<i>Picrorrhizia kurroa</i>	Scrophulariaceae	Picrosides I, II, III and kutkoside
4	<i>Withania somnifera</i>	Solanaceae	Withanolides, Withaferin
5	<i>Acorus calamus</i>	Araceae	β -asarone (46.78%), linalool (0.41), farnesol(11.09%),methyleugenol(6.10%)
6	<i>Zingiber officinale</i>	Zingiberaceae	Curcumin, gingerenone A, Gingeols, shogaols, zingerone
7	<i>Embelia ribes</i>	Myrsinaceae	Embelin, christembine
8	<i>Terminalia chebula</i>	Combretaceae	Arjunglucoside I, arjungenin, chebulosides I and II, chebulin, 2,4-chebulyl- β -D-glucopyranose, chebulinic acid, chebulic acid, terchebin
9	<i>Jatropha curcas</i>	Euphorbiaceae	5 α -stigmastane-3,6-dione, nobiletin, β -sitosterol, taraxerol, jatropholone, jatropholone B, caniojane, daucosterol
10	<i>Allium sativum</i>	Liliaceae	Alliin, allicin alliin, alliinase
11	<i>Mentha species</i>	Labiataeae	Monoterpene ketones
12	<i>Mimosa pudica</i>	Mimosaceae	Mimosine, 2-mercaptoaniline
13	<i>Nicotiana tabacum</i>	Solanaceae	Rutin, chlorogenic acid, glutamic acid, anabasine, myosmine, cotinine, tabacinine, tabacine, anthalin, nicotelline, nicotianine
14	<i>Clerodendrum serratum</i> , <i>Clerodendrum viscosum</i>	Verbanaceae	Hispidulin, cleroflavone, apigenin, scutellarein, serratagenic, acteoside, verbascoside, clerodermic acid

15	<i>Barleria grandiflora</i>	Acanthaceae	Iridoids, acetylbarlerin, scutellarein-7-rhamnosyl
16	<i>Aegle marmelos</i>	Rutaceae	Butylp-tolyl sulfide, 6-methyl-4-chromanone and 5-methoxypsoralen
17	<i>Tinospora cardifolia</i>	Menispermaceae	Columbin, tinosporaside, jatrorrhizine, tembeterine, tinocordifolioside, tinosporic acid, tinosporal, tinosporon
18	<i>Zanthoxylum armatum</i>	Rutaceae	α -amyrin, armatonaphthyl arabinoside, 1-linoleo-2,3-diolein
19	<i>Vitex trifolia</i>	Verbanaceae	Artemetin, 7-desmethyl emetin, sabinene, α -pinene, caryophyllene, vitricin
20	<i>Cynodon dactylon</i>	Poaceae	Ortho hydroxyphenyl acetic acid, syringic acid, para coumaric acid
21	<i>Momordica dioica</i>	Cucurbitaceae	Momordicin, momodicaursenol, gypsogenin
22	<i>Rhinacanthus nasuta</i>	Acanthaceae	Rhinacanthin, rhinacanthin-C, rhinacanthin-D
23	<i>Vernonia cinerea</i>	Asteraceae	Luteolin-7mono-beta-D-glucopyranoside, lupeol acetate
24	<i>Cuscuta reflexa</i>	Convolvulaceae	Kaempferol, uercitin, hydroxycinnamic acid, scoparone, melanettin, quercetin, hyperoside, cuscutalin
25	<i>Crinum asiaticum</i>	Amaryllidaceae	Criasiaticidine A, lycorine, pratorimine, crinamine, hippadine
26	<i>Symplocos cochinchinensis</i>	Symplocaceae	Phloretin-2-glucoside
27	<i>Drosera indica</i>	Droseraceae	Rosoliside, hyperoside
28	<i>Daucus carota</i>	Apiaceae	Carotene, carotin
29	<i>Cannabis sativa</i>		Delta-9-Tetrahydrocannabinol
30	<i>Solanum nigrum</i>	Diosgenin	Solanaceae
31	<i>Fagopyrum esculentum</i>	Polygonaceae	Amygdalin, Rutin
32	<i>Xanthium strumarium</i>	Compositae	Spathulenol, α -cadinol, α -muurolene, copaene
33	<i>Cissus quadrangularis</i>	Vitaceae	Iridoids, stilbenes
34	<i>Citrus medica</i>	Rutaceae	Methyl ferulic acid, dihydro-N-caffeoyltyramine, acacetin, β -ecdysterone, (-)-balanophonin, p-methoxy cinammic acid, umbelliferone, ferulic acid, diosmetin
35	<i>Panax ginseng</i>	Araliaceae	Ginsenosides, Panaxosides
36	<i>Cucurbita maxima</i>	Cucurbitaceae	Cucurbitacin, cucurbitin, pheophytin A, niacin, thiamine
37	<i>Cassia fistula</i> , <i>Cassia tora</i>	Fabaceae	fistullic acid, chrysophanic acid, fistuacacidin, rubrofusarine, rubrofusarine triglucoside
38	<i>Colchicum luteum</i>	Liliaceae	Colchicines demecolcine
39	<i>Hedyotis diffusa</i>	Oocystaceae	Lysine
40	<i>Catharanthus roseus</i>	Apocynaceae	Vinblastine, Vincristine
41	<i>Betula utilis</i>	Betulaceae	Betulin
42	<i>Aglaila sylvestre</i>	Meliaceae	Silvesterol
43	<i>Agapanthus africanus</i>	Agapanthaceae	Isoliquiritigenin

44	Astragalus membranaceus	Papilionaceae	Swainsonine
45	Annona species	Annonaceae	Acetogenins
46	Angelica sinensis	Umbelliferae	Polysaccharide fraction
47	Ananas comosus	Bromeliaceae	Bromelain
48	Aloe ferox, Aloe barbadensis	Liliaceae	Aloe-emodin, emodin, aloin
49	Actinidia chinensis	Actinidiaceae	Polysaccharide

Common Problem in Malignancy and its solution

There are many changes in physiology of body after having malignancy. It is because of tumour induced metabolic changes and immune responses. These changes impacts upon the quality of life and survival rate of cancer patients. The common problems usually find out in every malignancy are pain at cancer or metastatic site, loss of appetite, weight loss, nausea, vomiting, Constipation, diarrhea Flatulence, Fatigue, sleep disturbance and low hemoglobin level.

Ayurveda have several potential benefits in cancer management but these above symptoms and sign are especially valuable. Also Ayurvedic herbs reduces the side effects of chemo and radiotherapy.

Each single ayurvedic herb contains multiple active principles that may operate synergistically, producing therapeutic benefits and lowering the risks on adverse effects. Some examples are as given below in this table:-

S. No.	Clinical condition	Beneficial herbs
1	Loss of appetite	<i>Withania somnifera, Sida cordifolia, Asparagus racemosa, Vitis vinifera, Plumbago zeylanica, Tinospora cordifolia, Zingiber officinale, Coptidis rhizoma, etc.</i>
2	Constipation	<i>Terminalia chebula</i>
3	Diarrohea	<i>Aegle marmelos, Holarrhena antidysenterica, Punica granatum, Cyperus rotundus, Emblica officinalis, and Plumbago zeylanica</i>
4	Nausea/ vomiting	<i>Eclipta prostrata, Emblica officinalis, Withania somnifera, Piper longum</i>
5	Immunostimulants	<i>Withania somnifera and Tinospora cordifolia</i> - increase body resistance power during cancer associated immunosuppression.
6	Sleep disturbance	<i>Withania sominifera, Asparagus racemosa, Hydrocotyle asiatica, Nardostachys jatamamsi, Bacopa monniera</i> strengthens mental faculties and helps to manage insomnia
7	Loss of weight	<i>Withania somnifera, Sida cordifolia, Asparagus racemosa, Vitis vinifera, Plumbago zeylanica, Tinospora cordifolia, Zingiber officinale, Coptidis rhizoma, etc.</i>
8	Anemia	<i>Mandoor bhasma</i>
9	Pain	<i>Godanti Bhasma, Dashmoola Kwath, Maharasnadi Kwath</i>

Ayurvedic therapeutic regimen rejuvenates the body tissues, stregtnth the body systems and recover the cells from harmful effects of radio-chemothearapy. That recovered cells enhance the system capacity as well as life quality and life expectancy. Thus ayurvedic system of medicine is very effective in all type of malignancy to combat cancer symptoms and, to improve quality of life.

Future aspect of Cancer therapy in Ayurveda

Globally there are a large population that uses ayurvedic product in their routine life not only for disease but also for promoting and sustaining healthy life. Specially after covid 19 pandemic, ayurveda medicine established itself at gold standard in human life.

It is a challenges for all human being to conduct high-quality intensive research in ayurvedic system of medicine and to evaluate its efficacy in the field of

oncology. Clinical research as the randomised controlled clinical trial (RCT) could be the most scientific work to evaluate the same. After standardisation and quality production of ayurvedic herbs research studies should be done. Proper research funding should be given to clinical investigations in Ayurveda involving well-designed studies and conventional medicine.

More attention should be given to the consideration of community practice settings, patient expectations, compliance and cost effectiveness of therapy.

Conclusion and future directions

In spite of upgrading and advancing in medical science malignancy is the hot topic in 2022, because of its frequency and mortality rate. But still we have not found a perfect curative treatment for malignancy. Lot of researches have been done and number of medicine as chemotherapy agent in market to treat malignancy. Also different type of radiotherapy and surgical approach have been running in medical system. But the clinical efficacy and extent of toxicity of numerous anticancer agents are unknown and uncertain.

Future research on this topic would help to identify safe and effective anticancer drugs and will further the exploration of their mechanism of action. In india there are many Ayurvedic practitioners and researchers who are working on malignancy and it will be very beneficial to improve this medicine by increasing their involvement and contribution.

This is the time not to ignore this wonderful science of ayurvedic system. There are lot of hope for many sufferers. Proper Case study should be done after making research design, which can form basis for future research directions and can provide valuable contributions to the medical field with minimal cost budgets.

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