



# Ethno-Medicinal Wisdom of Marathwada Region, (M.S.) India – A Systematic Review

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## ABSTRACT

Research on cancer has predicted that India's cancer burden will nearly double in the next 20 years, from slightly over a million new cases in 2017 to more than 1.9 million by 2037. Globally it is estimated 9.6 million deaths in 2018. About 1 in 6 deaths is due to cancer. Despite technological and social development cancer has become one of the most common disease of concern and a leading cause of human suffering & death. India is one of herbal hub in which Ayurvedic system of medicine has flourished in the field of medicinal plants. Currently medicinal plants have become the paramount source of drug discovery in research for treating the cancer. So, the aim of this review is to focus on the work on anticancer properties of some medicinal plants found in Marathwada region of Maharashtra state. This review includes information on Botanical Name, Part used, chemical constituents and their structure of the anticancer plants.

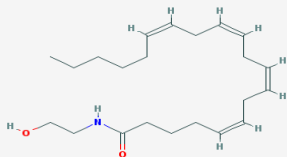
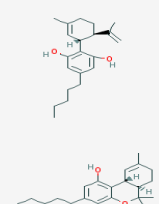
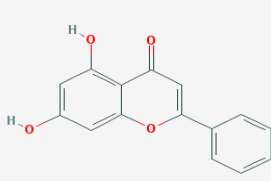
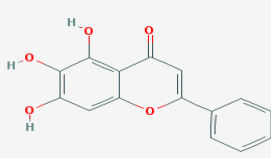
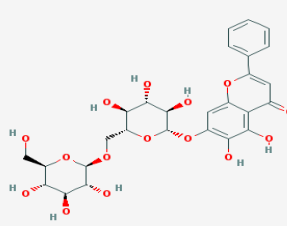
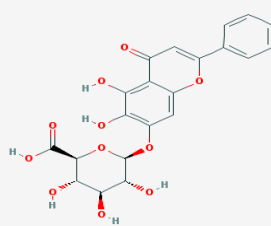
**Key Words:** Anticancer, Phytochemicals, Ayurveda, anticancer.

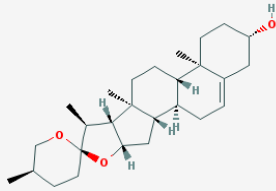
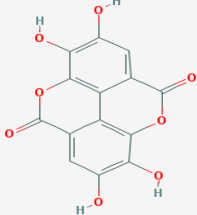
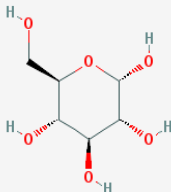
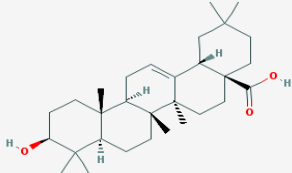
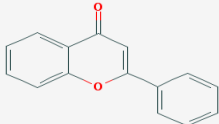
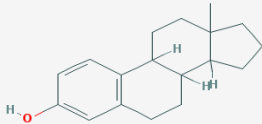
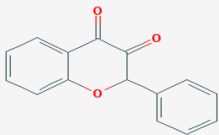
## INTRODUCTION:

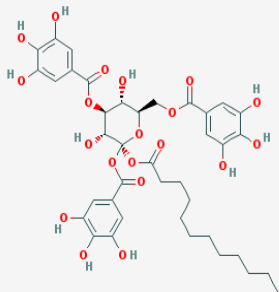
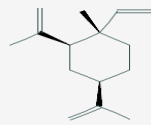
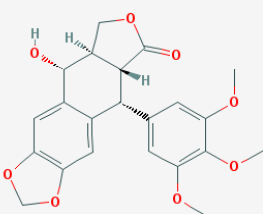

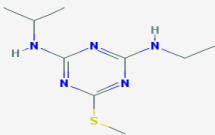
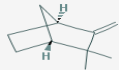

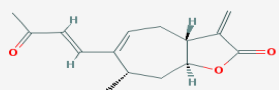
Following heart disease, cancer is the biggest cause of death in the world. Cancer is generic term for over 200 diseases, which share a number of characteristics including uncontrolled cellular proliferation. A disease grown by an uncontrolled splitting up of anomalous cells in a fraction of the body is called as cancer. The uncontrolled growth can overcome on surrounding organs, causing disruption of normal bodily functioning which in turn can leads to death. Another feature of cancer is the ability of tumour cells to migrate to other sites in the body. This process (metastasis) also increases the difficulty in treating these diseases as these secondary tumours can also disrupt bodily functions. Under these conditions the removal of tumours by surgery becomes less practicable & other methods of treatment are needed. Chemotherapy is use of appropriate drugs therefore becomes the therapy of choice under these circumstances. Also, in case of skin cancer & melanoma towards death among world need new modalities in cancer research. Melanoma is the main cause of death in patients with skin cancer around the world. Melanoma is less common than other skin cancer. However, it is much more dangerous if it is not detected early & is responsible for the majority (75%) of the skin cancer related death. The spread of Metastatic Melanoma (MM) to other organs is one of the most dangerous conditions that are almost uniformly fatal for the majority of patients with the currently available treatment modalities. Since, Melanoma is an immunogenic tumour, developing novel immune strategies will continue to play a critical role in designing effective treatment modalities for those at high risk of recurrence & those with distant metastasis. The treatment includes surgical removal of the tumour. If melanoma is found early when it is still small, thin & completely removed, the chances of cure are high. The likelihood of the melanoma coming back or spreading out depends on how deeply it goes into the layers of the skin. For melanomas that come back or spread out, treatment includes chemo and immunotherapy or radiation therapy. Therefore, there is a need to understand cancer burden on world is necessary. Also requires social health awareness about the cancer & its treatment. In United State, one in 4 deaths occur due to the cancer. During 2012, In United. For the significant development in the preventions and treatment of cancer, it is necessary to analysis of pathways, mechanism and structure of antitumor compound

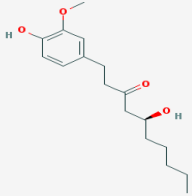
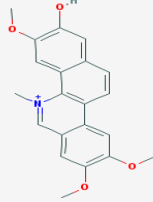
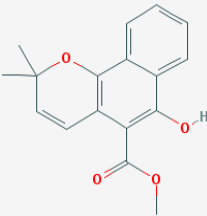
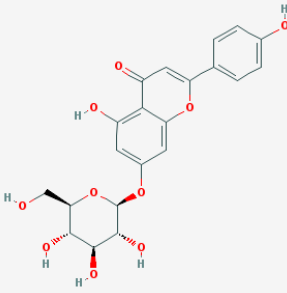
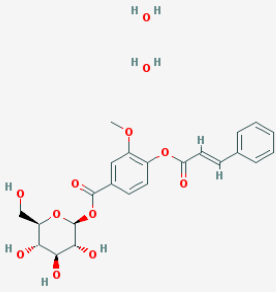
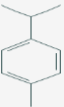
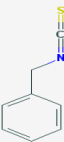
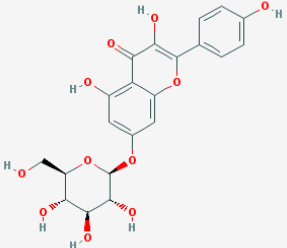
Development of tumor cell lines and analysis of the effect of many natural and artificial antitumor compounds have achieved a bright success. Recently, for the treatment of cancer, many gold standard approaches *viz* chemotherapy, irradiation and immunotherapy can be applied. Marathwada is part of Maharashtra State comprising seven districts (70°5'-78°5'N & 17°5'-20°5'E) forms a part of the vast Deccan plateau of Maharashtra, India. The plant wealth of the Marathwada region is known through many publications of several researchers. The present review focuses on enlisting the plants, which are having anticancer properties, their chemical constituents and their structure.

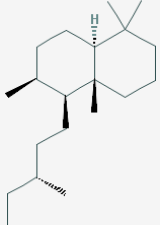
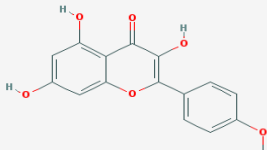
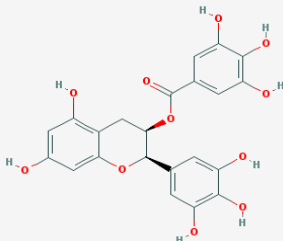
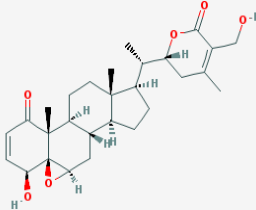
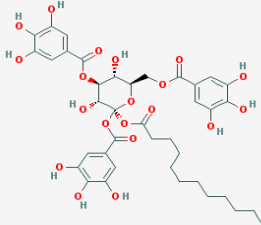
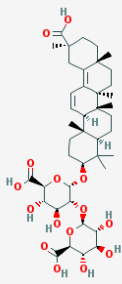
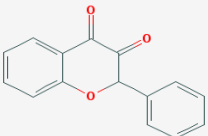
**Table:** List of plants used in anticancer activity and some of their common chemical constituents & their structure.

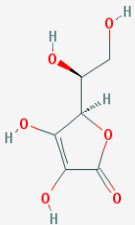
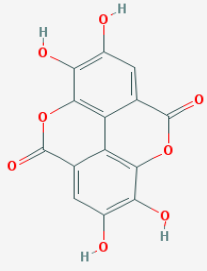
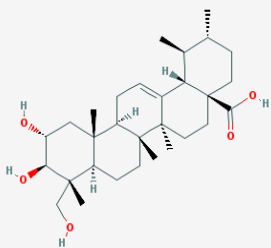
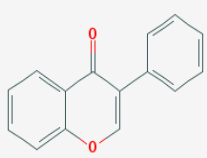
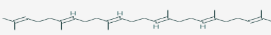
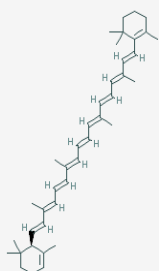
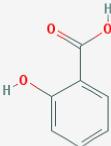
Sr	Botanical Name	Part used	Chemical constituents	Structure	References
1.	<i>Cannabis sativa</i>	Leaf	Anandamide,		AL.R. <i>et al</i> 2012
			Cannabinoids		
2..	<i>Oroxylum indicum</i>	Leaf	Chrysin,		Zazali K. E <i>et al</i> 2013
		Young pod	Baicalein,		
		Stem	Oroxylin-B,		
			Baicalin.		

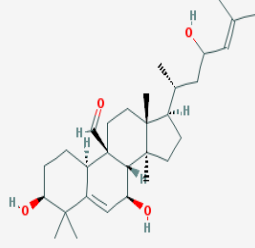
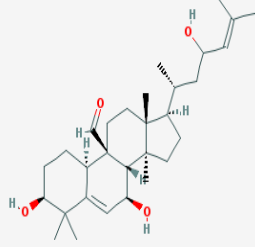
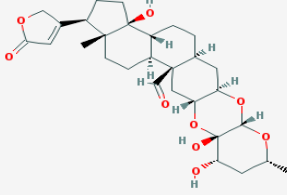
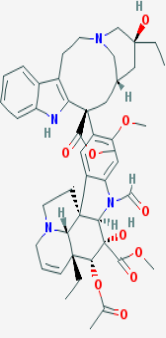
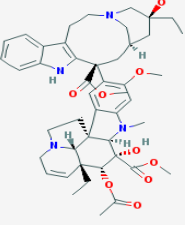
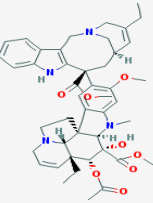
3.	<i>Solanum nigrum</i>	Fruit	Diosgenin		Patel <i>et al</i> 2009
4.	<i>Terminalia chebula</i>	Fruit	Ellagic acid		Nguyen TT, <i>et al</i>
			Glucopyranose		2013
5.	<i>Betula utilis</i>	Bark	Triterpenes		Mishra <i>et al</i> 2016
6.	<i>Zea mays</i>	Leaf	Flavones		Balasubramanian <i>et al</i> 2013
7.	<i>Moringa oleifera</i>	Leaf	Steroid		Krishnamurthy <i>et al</i> 2015
8.	<i>Mentha arvensis</i>	Leaf	flavonone		Chandan k <i>et al</i> 2014

9.	<i>Terminalia bellerica</i>	Fruits	Tannins laurate		Kaur S <i>et al</i> 2005
10	<i>Zingiber officinale</i>	Buds	b- Elemene		Shailah A <i>et al</i> 2010
11	<i>Ocimum basilicum</i>	Flower	Podophyllotoxin		Naidu <i>et al</i> 2016
12	<i>Allium sativum</i>	Stem	Allicin		Banasenthil <i>et al</i> 2001.
13	<i>Lanata camara</i>	Whole plant	Camerine, isocamerine, micranine		Madhuri L <i>et al</i> 2009.
14	<i>Vitex rotundifolia</i>	Whole plant	Camphene		Desai <i>et al</i> 2008
15	<i>Mangifera indica</i>	Stem bark	Polyphenols		Mohammad S <i>et al</i> 2006
16	<i>Xanthium strumarium L.</i>	Burs	Xanthatin, 2-sesquiterpenelactones		Ramirez <i>et al</i> 2007

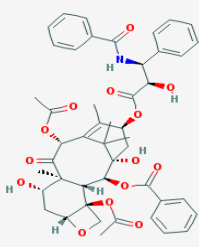
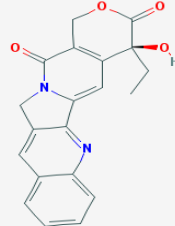
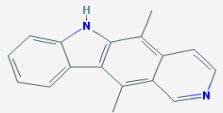
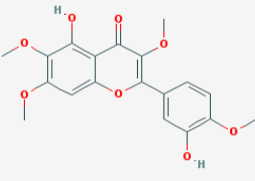
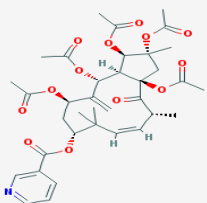
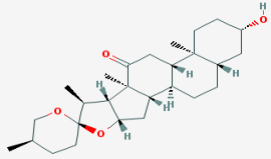

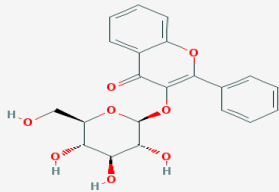
17	<i>Curcuma longa</i>	Buds	Gingerol		Donipati <i>et al</i> 2015
18	<i>Acharanthus aspera</i>	Leaf & Stem	Fagaronine		Verma <i>et al</i> 2017
19	<i>Rubia cordifolia</i>	Root	Mollugin		Gupta P <i>et al</i> 1999
20	<i>Scutellaria</i>	Leaf	Apigenin		Yin <i>et al</i> 2004
21	<i>Picrorrhiza kurroa</i>	Stem	Kutkin		Bhandari P, <i>et al</i> 2008.
22	<i>Artemisia indica</i>	Leaf & young shoot	p- cymene, $\alpha$ pinene		TiwaryBK <i>et al</i> 2015
23	<i>Carica papaya</i>	Latex	Benzyl isothiocyanate		Nguyen TT <i>et al</i> 2013
24	<i>Smilax china</i>	Rhizome	Kaempferol-7-O-beta-D-glucoside		Xu W. <i>et al</i> 2008

25	<i>Andrographis paniculata</i>	Leaf	Labdane diterpenoids		Geethangili M. et al 2008
26	<i>Alpinia galanga</i>	Rhizomes	Flavones & keampferide		Desai A. G et al 2008
27	<i>Camellia sinensis</i>	Leaves	Epigallocatechin-3-gallate		Hwang J. T et al 2007
28	<i>Withania somnifera</i>	Roots	Withaferin-A		Ali. M. et al 1997
29	<i>Embllica officinalis</i>	Fruits	tannins		Kaur S et al 2005
30	<i>Glycyrrhiza glabra</i>	Roots	saponin		Dong S. et al.2007
31	<i>Citrus aurantium</i>	Fruits	Flavonone		Bruneton J. et al 1997

32	<i>Rosa centifolia L.</i>	Petals	Ascorbic acid		Van Wyk .et al 2004
33	<i>Punica granatum L.</i>	fruits	Ellagic acid		Van Wyk .et al 2004
34	<i>Centella asiatica L.</i>	Leaf and stem	Asiatic acid		Brunaton J et al 1999
35	<i>Medicago sativa L.</i>	Leaf and stem	Isoflavonoids , coumarins		Re R et al 1999
36	<i>Azardiracht a indica a. juss</i>	Leaves	squalene		Draelos ZD et al 2003
37	<i>Citrullus vulgaris Schrad.</i>	Fruits	Carotenoids		Glaser DA et al 2004
38	<i>Aloe vera Linn.</i>	Gel	Salicylic acid		Choi SW et al 2001

39	<i>Momordica charantia</i> Linn	Fruits	Momordicin, characin		Nesar Ahmad et al.2016
40	<i>Vitex negundo</i> Linn	Leaves	alkaloids		Chitra et al 2009
41	<i>Calotropis procera</i> R.	Latex	Calotropin		Sayed Ael, et al 2016.
42	<i>Catharanthus roseus</i>	Leaves	vincristin		Preeti singh et al 2013
		Stem	vinblastin		
			vinorelbine		



43	<i>Taxus brevifolia</i>	Bark	paclitaxel		Preeti singh et al 2013
44	<i>Camptotheca acuminata</i>	Stem	camptothecins		Preeti singh et al 2013
45	<i>Blechnum vitense</i>	Root	Ellipticine		Kharb M. et al 2012
46	<i>Vitex rotundifolia</i>	Leaves	casticin		Kaur R. et al 2011
47	<i>Euphorbia semiperfoliata</i>	Latex	Jatrophone		Henry S.H. et al 2002
48	<i>Agave Americana</i>	Leaf	Hecogenin		Gordon M. C. et al 2005
49	<i>Mentha spicata</i>	Leaf	Phenols, flavonoids		Naidu J.R et al 2016
50	<i>Syzygium cumini</i>	Seed	flavonoids		Kamle S.V et al.2018

## CONCLUSION

The knowledge of medicinal plants used by the people is popular in various culture & traditions. Therefore, taking herbal medicine concerns, not always or almost 100% effective, and should not take with prescribed medication or having existing health problems. Despite the availability of various anticancer modalities, one of the most challenging research area of pharmaceutical & medical sciences is the search for newer, most potent ,additionally safe & less expensive drugs that require infrequent & self administration & should have long lasting but anticancer effect . From this review it reveals that phenol, flavonoids, phytoconstituents may be mostly responsible for anticancer activity.

## ACKNOWLEDGEMENT

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