

Ethno-Botanical Study of Some Medicinal Plants Used for Treatment of Cancer in District Rajouri (Jammu & Kashmir) India

Abstract

Ethno-botanical survey of some medicinal plants used in the treatment of cancer was carried out in the District Rajouri (Jammu & Kashmir State) India. Herbalists, herb sellers and traditionalists living within the study area were interviewed by the administration of questionnaires. Twenty six plants species of Angiosperm were found to be used in the treatment of cancer. Prominent species among these are the members of family Liliaceae ad Rutaceae which were found to be very important and useful in the treatment of the disease based on their frequency of occurrence in the recipes. several plants parts which were said to be useful were indicated in the recipes.

Keywords: Cancer, ethnobotany, medicinal plants, traditional healers

Introduction

Over the past decade, herbal medicine has become a topic of global importance, making an impact on both world health and international trade. Medicinal plants continue to play a central role in Medicinal plants continue to play a central role in the healthcare system of large proportions of the world's population. This is particularly true in developing countries, where herbal medicine has a long and uninterrupted history of use. Recognition and development of the medicinal and economic benefits of these plants are on the increase in both developing and industrialized nations (WHO, 1998). Continuous usage of herbal medicine by a large proportion of the population in the developing countries is largely due to high cost of weteren pharmaceuticals and healthcare (Koduru et al. 2007). In addition, herbal medicines are more acceptable in these countries from their cultural and spiritual points of view. Use of plants for medicinal remedies is an integral part of the Rajouri cultural life, and this is un likely to change in the years to come. Several studies employing methodologies of modern medicine habve been conducted on a multitude of herbs of ethno-botanical importance. Ayurveda, the Traditional Indian System (TIS) of medicine, has been successful from ancient times in using natural drugs, mostly herbal preparations, in preventing or suppressing various diseases using several lines of treatment (Dnagwal and Antitue, 2011).

Among the human diseases treatment of cancer with medicinal plants, which is probably the most important genetic disease as well as other factors. cancer has been defined as a disease in which there is uncontrolled multiplication and spread within the body of abnormal forms of the body's own cells (rang et al., 2001). All cancel types arise through a series of steps characterized by progressive loss of normal growth control. There are proteins in the cells that ensure this continuity (Brooks and La Thanque, 1999). Death from cancer often comes not from the primary site but from metastages. Cancer may affect people at all ages even foetus but the risk for most varieties increases with age. Thousands of herbal and traditional compounds are being screened worldwide to validate their use as anticancerous drugs (Diwanay et al., 2004; Liu et al., 1998. The disease cause about 13% of all death Reports have shown that during 2007, about 7.6 million people died from cancer in the world. All cancers are caused by abnormalities in the genetic material of the transformed cells and theses abnormalities may be due to the effect of carcinogens such as tobacco, smoke, radiation, chemicals and infectious agents.



Sajjad Ahmed Mir

Research Scholar,
Deptt.of Zoology,
Bharath University,
Adyar, Chennai,
Tamilnadu

Every year, millions of people are diagnosed with cancer, leading to death in a majority of the cases. According to the American Cancer Society (ACS) 2006, death arising from cancer constitute 2-3% of the annual deaths recorded worldwide. In India, cancer rates are increasing every year, breast cancer rates are increasing every year, breast cancer being the most common form of cancer in women worldwide and the second most common form of cancer in women worldwide and the second most common cancer amongst Indian women (Mouli et al. 2009). Current statistics indicates that across all ethnic groups, one in every 31 women in this country is likely to develop breast cancer. Many traditional healers and herbalists have been treating cancer patients for many years using various medicinal plant species. Despite the long history of cancer treatment using herbal remedies in the study area, the knowledge and experience of these herbalists have not been scientifically documented. Information on traditional herbal practices is passed from one generation to the other through oral tradition. Considering the rapid rate of deforestation and loss of biodiversity, there is a need for accurate scientific documentation of the knowledge and experience of these herbalists. In this paper, we report the information's on plants gathered from traditional and elder rural dwellers, used in the study area for the treatment of cancer.

Methodology

The present communication pertains to the location anticancer medicinal plants of District Rajouri (J&K). The study was based on extensive and intensive field surveys made during the course of field surveys the authors have selected 06 blocks in district Rajouri i.e. sunderbani, Nowshera, Kalakote, rajouri, Thanamandi and Darhal. Three sites were selected in each block for collection of plants followed by family Poaceae, Polygonaceae and Verbenaceae each having 03 weeds species. The information was collected from herbalists, traditional healers and rural dwellers in the study area and was compiled through scientifically guided questionnaires, interviews and general conversations. Although informants were not scientifically literate, they were born in the region and had lived there for most of their life. Healings homes were not left out in this exercise. relevant information regarding the plant species, recipes, their local names, modes of administration and dosage pattern were also collected to enhance permanent record (Table 1). The plants were initially identified by their vernacular names through consultations with the local people Standard method of collection, preservation and maintenance of specimens in the herbarium were followed by Jain and Rao, (1977), Singh and Subramanyam, (2008). The plant specimens were properly identified with the help of available taxonomic literature and monographs (Hooker 1872-1897; Osmaston, 1927; Polunin and Stainton, 1984) etc.

Enumeration of Recipes

Recipe -1

| Botanical Name | Vernacular Name | Plant part used |
|--------------------------------------------------------|-----------------|-----------------|
| <i>Calotropis procera</i> (Aiton) Dryander | Aak | Leaves |
| <i>Kigelia africana</i> (Lam.) Benth. | Kanguli | Leaves and bark |
| <i>Diospyros malabarica</i> (desrousseaux) Kosteletsky | Gab | Bark and fruit. |

Preparation

Leaves bark and fruit should be rinsed and boiled in 4 liters of fermented corn water for 6 hours.

Application

It is taken as a tea thrice a day with a cup.

Recipe -2

| Botanical Name | Vernacular Name | Plant part used |
|----------------------------------------|-----------------|-----------------|
| <i>Mangifera indica</i> L. | Aam | Bark |
| <i>Citrus medica</i> L. | Nimbu | Fruit juice |
| <i>Allium cepa</i> L. | Pyas | Leaves |
| <i>Bryophyllum pinnatum</i> (Lam) Oken | Bish-Kapru | Root |

Preparation

The Roots bark and leaves are indicated above should be rinsed and boiled in the water for 40 minutes. Citrus medica fruit juice is added when cooled.

Application

Cup full 3 times daily upto 2 months.

Recipe- 3

| Botanical Name | Vernacular Name | Plant part used |
|-------------------------------------------------|-----------------|-----------------|
| <i>Citrus medica</i> L. | Nimbu | Fresh juice |
| <i>Citrus aurantifolia</i> (Christmann) Swingle | Kagjinimbu | Fresh juice |
| <i>Plumbago zeylanica</i> L. | Chitrak | Root |

Preparation

It should be ground together smoothly and mixed with black soap and gum powder.

Application

Use the preparation to wash all the part of the body, once in a week.

Recipe- 4.

| Botanical Name | Vernacular Name | Plant part used |
|-----------------------------------|-----------------|---------------------|
| <i>Zingiber officinale</i> Roscoe | Adrak | Rhizome, Seed/fruit |
| <i>Curcuma domestica</i> Valetton | Haldi | Whole plant |
| <i>Allium sativum</i> L. | Lahsun | Bulbs |
| <i>Allium cepa</i> L. | Pyas | Leaves |

Preparation

All the plants should be ground together when dried and taken with honey.

Application

Take one full cup as tea 3 times daily after meal.

Recipe-5

| Botanical Name | Vernacular Name | Plant part used |
|---------------------------------------|-----------------|------------------------|
| <i>Chenopodium ambrosioides L.</i> | Bethuali | Twigs and roots |
| <i>Allium stivum L.</i> | Laksun | Leaves |
| <i>Oroxylum indicum (L.) Ventenat</i> | Tantia | Fruit, bark and leaves |
| Potash | | |

Preparation

Soak all the above with lime and dry gin with gun powder for 30 days.

Application

Two teaspoonful morning and evening after meal.

Recipe-6

| Botanical Name | Vernacular Name | Plant part used |
|---------------------------|-----------------|------------------------------|
| <i>Cannabis sativa L.</i> | Bhangulu | Leaves |
| <i>Solamum nigrum L</i> | Makoi | Leaves root, bark and fruit. |

Preparation

Whole plants are boiled until they burst into pieces. it is filtered and the decoction is made.

Application

One teaspoonful is taken once a day till recovery.

Recipe-7

| Botanical Name | Vernacular Name | Plant part used |
|--------------------------------|-----------------|-----------------|
| <i>Celtis eriocaroa Decne.</i> | Kharik | Bark and roots |

Preparation

Bark and root dried in sun light and made a powdered and infused in lemon juice or milk.

Application

Take orally every day till signs of relief are obvious.

Recipe-8

| Botanical Name | Vernacular Name | Plant part used |
|-----------------------------------------|-----------------|----------------------------|
| <i>Solamum nigrum L.</i> | Makoi | Fruit extract |
| <i>Catharanthus roseus (L.) G. Don.</i> | Sadhabahar | Leaves |
| <i>Buted monosperma (Lam.) Kuntze</i> | Dhak | Leaves, flowers and seeds, |
| <i>Triticum aestivum L.</i> | Gahun | Seed |

Preparation

All the plants should be ground together when dried and taken with honey.

Application

Take one full glass cup as tea 3 times daily.

Recipe-9

| Botanical Name | Vernacular Name | Plant part used |
|------------------------------------------|-----------------|--------------------|
| <i>Azadirachta indica A.H.L. Juss.</i> | Neem | Leaves and flower |
| <i>Plantago depressa Willd</i> | Luhurya | Leaves and seeds |
| <i>Artemisia nilagirica (C.B Clarke)</i> | Kunjaa | Leaves and flowers |

Preparation

Leaves, flowers and seeds are stamped and boiled in water to make a decoction. It is administered orally till signs of relief are obvious.

Application

Drink when hot with a glass cup twice daily.

Recipe-10

| Botanical Name | Vernacular Name | Plant part used |
|-------------------------------------|-----------------|-----------------|
| <i>Aloe vera (L.) Burm.</i> | Patanguar | Leaves |
| <i>Alstonia scholaris (L.) R.B.</i> | Stni | Whole plant |
| <i>Allium sativum L.</i> | Lahsun | Bulbs |

Preparation

Plant should be ground together when dried and taken with honey or milk.

Application

One teaspoonful is taken 3 times daily

Recipe-11

| Botanical Name | Vernacular Name | Plant part used |
|---------------------------------|-----------------|----------------------|
| <i>Saccharum officinarum L.</i> | Ganna | Crushed stem (Juice) |

Preparation

Crushed stem and fruit juice should be rinsed and boiled in one liter of Palam oil for two hours.

Application

Two tea spoonful morning and evening before meal.

Aim of the Study

To explore the external & internal features of the plants.

Results and Discussion

It is revealed that several ethno-medicinal plant species parts such as leaves, roots, barks and seeds have been found efficient in the treatment of cancer. However, the prominent plant species in the recipes are *Solanum nigrum*, *Catharanthus roseus*, *Butea monosperma*, *Triticum aestivum*, *Dispyrum malabarica*, *Kigelia Africana*, *Citrus medica*, *Citrus aurantifolia*, *allium cepa* and *Allium satvum* which are indicative of their importance in the treatment of cancer disease. Similarly, Fabaceae and Liliaceae families occurred more frequently in the list of plants identified but the occurrence of other families also suggested the importance of all those families as repository of useful chemical compounds which may be explored for drugs in the treatment of cancer (9madhuri and Pandey, 2009).

In orthodox medicine cancer can be treated with drugs and radiotherapy if detected early. Otherwise surgical operation is used at some stage after which it can become very difficult and hopeless. However, nature has some remedy for cancer patients. Some substances have been found to be anti-carcinogenic, i.e. they fight cancer forming cells and help to eliminate them from the body, for example cumaric acid and lycopene which are found naturally in tomatoes fruits (*Lycopersicum esculentum L.*) and the leaves of bitter leaf (*Vernonia amygdalina Del.*)

Also, a lot of research has been and is still being done on the effectiveness of *Aloe vera (L.) Burm.f.*, *Azadirachta india A.J.L. Juss.*, *Catharanthus*

rosesus (L.) G. don., *Butea monoperma* (Lam.) Kuntze for treating cancer. Literature has revealed that most of the synthetic drugs that have been used in the past have negative effects that were of grave consequence in some cases, especially when taken by patients on self prescription after an initial visit to the physician (Olapade, 2002).

For this reason, it is imperative for ethnobotanists and pharmacognosists to do more analysis on the 26 wonderful plants mentioned in his paper (table 1). Our medical health practitioners should also focus attention on more intense research on ethnomedicinal plants which can save the life peoples without side effects.

Table 1: Medicinal Plants Used by Treatment of cancer in the Rajouri District Block, Thanamandi, Darhal, Manajkote, Nowshera, Koteranka & sunderbani (J&K) India.

| S.No. | Botanical Name | Family | Vernacular Name | Plant parts used |
|-------|--------------------------------------------------------|----------------|-----------------|------------------------------|
| 1 | <i>Allium cepa</i> L. | Liliaceae | Pyas | Leaves |
| 2 | <i>Alium satvum</i> L. | Liliaceae | Lahsun | Bulbs |
| 3 | <i>Aloe wera</i> L. | Liliaceae | Patanguar | Leaves |
| 4 | <i>Alstonia scholaris</i> (L.) R.B. | Apocynaceae | Satni | Bark and leaves |
| 5 | <i>Artemisia nilagirica</i> (C.B. Clarke) | Asteraceae | Kunjaa | Leaves and flower |
| 6 | <i>Azadirachta india</i> A.H.S. Juss. | Meliaceae | Neem | Leaves, bark and flower |
| 7 | <i>Bryophyllum pinnatum</i> (Lam.) Oken | Crassulaceae | Bish-Kapru | Root |
| 8 | <i>Butea monosperma</i> (Lam.) Kuntze | Fabaceae | Dhak | Leaves flowers and seeds |
| 9 | <i>Calotropis procera</i> R.B. | Asclepiadaceae | Aak | Leaves |
| 10 | <i>Cannabis sativa</i> L. | Cannabaceae | Bhanglu | Leaves |
| 11 | <i>Catharanthus roseus</i> (L.) G. don | Apocynaceae | Sadabahar | Leaves |
| 12 | <i>Celtis eriocarpa</i> Decne. | Ulmaceae | Kharik | Bark and roots |
| 13 | <i>Chenopodium ambrosioides</i> L. | Chenopodiaceae | Bethuli | Twigs and roots |
| 14 | <i>Citrus aurantifolia</i> (Shrstromann) Swingle | Rutaceae | Kagjinimbu | Fruit juice |
| 15 | <i>Citrus medica</i> L. | Rutaceae | Nimbu | Fruit juice |
| 16 | <i>Curcuma domestica</i> Valetton | Zingiberaceae | Haldi | Whole plant |
| 17 | <i>Diospyros malabarica</i> (desrousseaux) Kosteletsky | Ebenaceae | Gab | Bark and fruit |
| 18 | <i>Kigelia Africana</i> (Lam) Benth. | Bignoniaceae | Kanguali | Leaves and bark |
| 19 | <i>Mangifera indica</i> L. | Anacardiaceae | Aam | Bark |
| 20 | <i>Oroxylum indicum</i> (L.) ventenat | Bignoniaceae | Tantia | Fruit bark ad seeds |
| 21 | <i>Plantago depressa</i> Willd. | Plantaginaceae | Lahurya | Leaves and seeds |
| 22 | <i>Plumbago zeylanica</i> L. | Plumbaginaceae | Chitrak | Root |
| 23 | <i>Saccharum officinarum</i> L. | Poaceae | Ganna | Crused stem (Juice) |
| 24 | <i>Solanum nigrum</i> L. | Solanaceae | Makoi | Leaves, root, bark and fruit |
| 25 | <i>Triticum aestivum</i> L. | Poaceae | Gehun | Seed |
| 26 | <i>Zingiber officinale</i> Roscoe | Zingiberaceae | Adrak | Rhizome, seed/ fruit. |

Formulation of the dosages of extracts from the recipes must be strictly adhered for maximum efficacy and also the avoidance of over dosage which may lead to other complications in patients. One major advantage of traditional medicine is that, it is cheaper than orthodox medicine. While drugs alone are not the only means of providing health care, they do play an important role in protecting, maintaining, and restoring the health of people. Total information gathered from

the herbalist's shows that increasing number of people is turning to the use of anticancer which shows that they are effective and efficient in the treatment of cancer. According to Olapade (1995), traditional medicine has higher benefits than any other health care system as it is cheaper, readily available and could cure permanently. Apart from this, it has no side effect and is capable of saving for the nation, huge foreign exchange which can be used for other

development programme. The vulnerability of medicinal plants to over exploitation and extinction needs to be dealt with seriously. Issues relating to the conservation of these medicinal plants should be addressed by the Government and Non-governmental Organizations. Conservation methods such as in-situ and ex-situ should also be adopted to protect our natural biodiversity (Soladoye et al., 2006).

A need for further scientific research based on the findings of this survey is indeed very necessary and recommended so that adequate records of indigenous methods for the management of cancer can be kept for posterity especially in the study area. A need for analytical work on the plants identified as useful for the management of cancer is also necessary in order to determine the actual dosage applicable so that the medicinal value of these plants could be made available to humanity and hence reduce pain, cost and sudden death of the peoples.

Acknowledgement

The author is thankful to the peoples of District Rajouri for providing us ethno-medicinal plants information's and valuable suggestion.

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