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An Ethno botanical Study for the Treatment of Cancer and Malaria Used by the People of Quetta City

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Abstract

Cancer and Malaria are the common diseases affecting the citizens of both developed and poor countries. An ethno-botanical survey was conducted at Sardar Bahadur Khan Women's university campus, From March to November 2010. Ethno-botanical information was collected from faculty and students on Sardar Bahadur Khan Women's university campus and interviewing local people. This study was mainly focused on indigenous knowledge about the fruits, vegetables and herbs used for the treatment of cancer and malaria. The attempt was endured to collect indigenous knowledge with details of their local names, part used, distributed and recipes of medicinal use etc. In this study, 50 plants were recorded belonging to 32 species. It was observed that plants of the family Cucurbitaceae (4 Species) are most commonly used for the treatment of cancer. And family Lamiaceae (3 species) and family Rutaceae (3species) are most commonly used for the treatment of malaria. The most studied species used for the cancer treatment are *Caralluma Tuberculate* (Asclepiadaceae), *Cucurbita maxima* (Cucurbitaceae), *Luffa acutangula* (Cucurbitaceae), *Fragaria vesca* (Rosaceae), *Spinacea oleracea (*Chenopodiaeae). Moreover, the most studied species used for the malaria treatment are *Citrus limonia* (Rutaceae) Juniperus excelsa (Cupressaceae), and Momordica charantia (Cucurbitaceaea). It is suggested that the use of herbs for cancer and malaria is more secure as compared to synthetic medicines.

Key words: *Fruits, Vegetables, Herbs, Cancer, Malaria. Socioeconomic documentation.*

1 Introduction

Approximately 6000 plant species with medicinal properties are found in Pakistan. Scientific has done a lot of research work on medicinal plant components and usage. Plants, roots, bark, leaves, seeds and flowers have contributed immensely to ruler's health care through the provision of drugs for treatment of ailments. There are different types of fruits, vegetables and herbs which are used for the treatment of different diseases such as malaria and cancer. Ethno botanical information about anti-malarial plants, used in traditional herbal medicine, is essential for the further evolution of the efficacy of plant anti-malarial remedies and for isolating and identifying of new anti-malarial drugs. The two main groups of modern antimalarial drug artemisinin and quinine derivatives are known to have their source from herbs. Studies have documented over 1,200 plant species from 160 families used in the treatment of malaria or fever [3].

Malaria is a global disease that is prominent in the tropics and caused by blood parasite, *Plasmodium falciparum, plasmodium ovale, and plasmodium malariae*, and *plasmodium vivax*. Malaria has a greater morbidity and mortality than any other infectious diseases of the world [2]. Estimated number of annual malaria

episodes in Pakistan is 1.5 million. In 2005, *falciparum malaria* constituted 33% of reported confirmed malaria cases, 40% of cases were reported from Balochistan province. Balochistan in its yearly reports showed positivity rate of *P. vivax 6.6%,* and *P falciparum* 11.2%, in 2004, 2005, and 2006 respectively. Sheikh et al [7] observed slide positivity 34.8% in Quetta during 1994-1998 [4],[5], [6].

The use of plant-derived drugs for the treatment of malaria has a long and successful tradition. For example, quinine isolated from Cinchona and quinghaosu from *Artemisia annua L.* Illustrates the potential value of investigating traditionally used anti-malarial plants for developing pharmaceutical anti-malarial drugs (several plant species including Alstonei boonei De Willd (Apocynaceae), *Azadirachta indica A. Juss*, (Meliaceae), *Cryptolepis sanguinolenta* (Lindl.) *Schttr*. (Asclepidaceae), *Morinda lucida Benth*. (Rubiaceae), *Nauclea latifolia Sm*. (Rubiaceae) and *Ocimum viride Willd*. (Lamiaceae) are used in the treatment of malaria [8].

It caused about 13% of all human deaths in 2007 (7.6 million). Cancers are primarily an environmental disease with 90-95% of cases due to lifestyle and environmental factors and 5-10% due to genetics. Plants have long been used in the National Cancer Institute collected about 35,00 plant samples from 20 countries and has screened around 114,000 extracts for anticancer drugs commercially available prior to 1983 in the US and among worldwide approved anticancer drugs between 1983 and 1994, 60% are of natural origin. It has been reported that among the different dietary components of fruits and vegetables, secondary plant constituents (such as phytotochemicals) play a major role in disease prevention [1].The following foods have the ability to help stave off cancer and some can even help inhibit cancer cell growth or reduce tumor size. Broccoli, cabbage, and cauliflower contains indole-3-carbinol that can reduce the breast cancer .Carrots contain a lot of beta carotene, which may help reduce a wide range of cancers including lung, mouth, throat, stomach, intestine, bladder, prostate and breast. *Garlic* as well as onions; contain immune-enhancing alliums compounds, which lower risk of stomach and colon cancer. Grapefruits, like oranges and *other* citrus fruits, contain monoterpenes, believed to help prevent cancer. *Nuts* contain the antioxidants quercetin and campferol that may suppress the growth of cancers. Oranges and lemons contain Limonene, which stimulates cancer-killing immune cells that may also break down cancer-causing substances. Teas: Green Tea and Black tea contain certain antioxidants known as polyphenols, which appear to prevent cancer cells from dividing. Tomatoes contain lycopene, an antioxidant that are suspected of triggering cancer. The aim of my study was to collect information from the group of students and faculty of the university and interviewed some local people about their current traditional uses of fruits vegetables and herbs for the treatment of malaria and cancer.

2 Materials and methods

2.1 Data Collection

The present study focused on herbs, fruits, and vegetables used to treat cancer and malaria. About 60 students and faculty from different departments were personally interviewed and asked questions regarding traditional uses of plants and their local name, their recipes, parts, uses and record other medicinal uses. The ethno botanical information and traditional uses of fruits vegetables and herbs for said purpose the data were collected systematically on malaria and cancer treatment questionnaires, semi- structured interviews and discussions. Collected data were also crossed checked in different areas from local inhabitants or identified with the help of floristic materials. (Nasir and Ali, 1970-1989); Ali and Nasir 1990-1991; Ali and Qaiser, 1993, 2001.

2.2 Collection of Plants

Plants were collected from different sites of Quetta city. The plants were collected from the hills, plains, and healers and herbalists. The plants were identified by local peoples of the area and then pressed them in presser and were taken to laboratory for identification. The plants were identified by their vernacular name. The botanical names of medicinal plants are listed in alphabetical order and listed their families and vernacular name. Hakims and parsers were also interviewed regarding the use of medicinal plants.

3 RESULTS AND DISCUSSIONS

Data obtained from the present study is compiled in Tables 1.1, 1.2, 1.3, and 1.4 and the plant species are arranged in alphabetic order. From the ancient times to date, people treated themselves with fruits, vegetables and traditional herbal medicines. The 50 species related to 32 families of fruits, the students and faculty of Sardar Bahadur Khan Women’s University campus and local people for the treatment of malaria and cancer diseases use vegetables and herbs. For each plant species botanical name, local name, family, part used, recipes are recorded.

One purpose of this ethno botanical study was to record the indigenous knowledge about plants. It was felt worthwhile to record the native uses of fruits, vegetables and herbs for the treatment of cancer and malaria by the students and faculty of Sardar Bahadur Khan Women's university campus. The local names, part used and methods of preparation were recorded. The present studies in Sardar Bahadur Khan Women University revealed that the older inhabitants have more knowledge and information about the use of fruits, vegetables and herbs for the treatment of cancer and malaria in comparison to younger generation and same in case of illiterate to literate people. Most of the remedies have been taken orally in the

form of decoction or extraction or paste. Various parts of the plants were utilized in the preparation of anti-malarial and anti-cancer herbal remedies The part utilized showed that most of the anti-malarial and anti-cancer drugs are obtained from fruits, roots, seeds, extract and sometimes the whole plant is uprooted and used in the preparation of the drugs.

Maximum number of species used for the treatment of cancer disease belonging to families like Cucurbitaceae (4species), Rosaceae (3species), Cruciferous (2species), Liliaceae (2species), Agaricaceae (1specie), Anacardiaceae (1specie), Apocynaceae (1specie), Asclepiadaceae (1specie), Caricaceae (1specie), Chenopodiaceae (1specie), Moraceae (1specie), Musaceae (1specie), Myrtaceae (1specie), Palmaceae (1specie), Sapotaceae (1specie), Solanaceae (1specie), Theaccae (1specie), Umbelleferas (1specie).

Maximum number of species used for the treatment of malaria disease belonging to Families like Asteraceae (3species), Lamiaceae (3species), Rutaceae (3species), Cucurbitaceae (2species), Rubiaceae (2species), Apiaceae (1specie), Compositeae (1specie), Convolvulaceae (1specie), Cupressaceae (1specie), Ephedraceae (1specie), Juglandaceae (1specie), Malvaceae (1specie), Palmaceae (1 specie), Poaceae (1specie), Punicacceae (1specie), Rosaceae (1specie), Vitaceae (1specie).

It was observed during the survey that plants of the family cucurbitaceae 4 species were most commonly used for the treatment of cancer. Family Asteraceae and Lamiaceae plants were most commonly used for the treatment of malaria. The most utilized anticancer plant species were: *Caralluma Tuberculate* (Asclepiadaceae), *Cucurbita maxima* (Cucurbitaceae), *Luffa acutangula* (Cucurbitaceae), *Fragaria vesca* (Rosaceae), and *Spinacea oleracea (*Chenopodiaeae) (Table 1.1) and most utilized antimalarial plant species were: *Citrus limonia* (Rutaceae*), Juniperus excelsa (*Cupressaceae*)* , and *Momordica charantia* (Cucurbitaceaea) (Table 1.3). Different plant parts used to cure cancer and malaria. Among these fruits were highly utilized followed by whole plant, leaves, roots, seeds,juice (Table 1.2 and 1.4).

Table 1.1. Showing Fruits, vegetables and herbs for the treatment of Cancer

S.NO	**BOTANICALNAME**	**LOCAL NAME**	**FAMILY**
1.	*Achras sapota*	Chiku(Sapodilla)	Sapotaceae
2.	*Agaricus campestris*	Kumbi (Mushroom)	Agaricaceae
3.	*Allium cepa*	Piaz (Onion)	Liliaceae
4.	*Allium sativum*	Thoom (Garlic)	Liliaceae
5.	*Brassica cabitata*	Bandgobi (Cabbage)	Cruciferae

6.	*Brassica oleracea*	Kale (Borecole)	Cruciferae
7.	*Carica papaya*	Papita (Pappya)	Caricaceae
8.	*Camellia Sinensis*	Tea	Theaccae
9.	*Caralluma Tuberculate*	Marmootk/Marmoot	Asclepiadaceae
10.	*Citrullus vulgaris*	Hadwana (Water melon)	Cucurbitaceae
11.	*Cucurbita maxima*	Walaiti kadoo	Cucurbitaceae
12.	*Cucurbita pepo*	Gia kadoo	Cucurbitaceae
13.	*Daucus carota*	Gajar (Carrot)	Umbelleferas
14.	*Eugenia jambolana*	Jaman (Balac palm)	Myrtaceae
15.	*Fiscus Carica*	Anjeer (Fig)	Moraceae
16.	*Fragaria vesca*	Strawberry	Rosaceae
17.	*Luffa acutangula*	Kali tori (Loofah)	Cucurbitaceae
18.	*Lycopersicum esculentun*	Tamatar (Tomato)	Solanaceae
19.	*Mangifera indica*	Am (Mango)	Anacardiaceae
20.	*Musa papadisiaca*	Kela (Banana)	Musaceae
21.	*Phoenix dactylifera*	Khajoor (Date/palm)	Palmaceae
22.	*Prunus domestica*	Khurmani (Apricot)	Rosaceae
23.	*Prunus persica*	Aru (Peach)	Rosaceae
24.	*Rhazya strictea*	Aizwarg	Apocynaceae
25.	*Spinacea oleracea*	Palak(Spinach)	Chenopodiaeae

Table 1.2. Showing part used and traditional recipes of Fruits, vegetables and herbs for the treatment of Cancer

S.No	BOTNICAL NAME	PART USED	METHOD OF PERPARATION OF DIFFERENT RECEPIES
1.	*Achras sapota*	Fruits Juice	Fresh fruits are cut in to slices and given

			to the patient daily for a month or used as a juice.
2.	*Agaricus campestris*	Whole part	The whole fresh part is boiled in water and used as a food twice a day for a week.
3.	*Allium cepa*	Root	Prepare onion content and taken along with food.
4.	*Allium sativum*	Whole plant	Make a paste of whole plant then take one tea spoon along with food twice a day for a month.
5.	*Brassica cabitata*	Flower	Fresh flowers are cooked as vegetable and given to the patient for two to three weeks.
6.	*Brassica oleracea*	Flower	Fresh flowers are cooked as vegetable and given to the patient twice a day for long period of time.
7.	*Carica papaya*	Fruits	Fresh fruits are cut into pieces and given to the patient twice a day for long period of time or used as a juice.
8.	*Camellia Sinensis*	Leaves	Leaves are boiled with water along with sugar and used as a tea and used two cups twice a day for three months.
9.	*Caralluma Tuberculate*	Whole plant	Whole plant is dried and powder is applied on wounds.
10.	*Citrullus vulgaris*	Fruits	Fresh fruits are cut in to slices and given to the patient daily at night for long period or used as a juice.
11.	*Cucurbita*	Fruits	Fresh fruit is cooked as vegetable and

	maxima		used weekly.
12.	*Cucurbita pepo*	Fruits	Fresh fruit is cooked as vegetable and given to the patient weekly for long period of time.
13.	*Daucus carota*	Root Fruits Juice	Fresh fruits and root are crushed. One cup of the juice is given to the patient daily for a month. Or roots are cut in to slices and taken daily.
14.	*Eugenia jambolana*	Fruits	Fresh fruits are cut in to slices and given to the patient thrice a day for long period of time.
15.	*Fiscus Carica*	Fruits	Fresh fruits are eaten daily in large quantity
16	*Fragaria vesca*	Fruits	Fresh or dried plant materials are first boil in water. Then two cups of this decoction taken orally at night for one week.
17.	*Luffa acutangula*	Fruits	Made the soap of fruit and used twice `a day for a month.
18.	*Lycopersicum esculentum*	Fruits	Fresh fruits are cooked as vegetable and given twice a day for long period.
19	*Mangifera indica*	Fruits Juice	Taken mango juice daily, which inhibits the growth cycle of cancer. or used as a fruit daily for long period of time.
20.	*Musa papadisiaca*	Fruits Juice	Fresh fruit is given to the patient daily for a month or used as a juice.
21.	*Phoenix dactylifera*	Fruit	Phonix dactylifora + Milk +Mil mixed together and take early in the morning

			daily before breakfast for two months or more.
22	*Prunus domestica*	Fruit	Fresh fruits are cut into slices and given to the patient weekly or used the extract of fruit daily,
23.	*Prunus persica*	Fruit	Fresh fruits are crushed and mixed with water .then one cup of the extract is given to the patient twice a day for two weeks.
24	*Rhazya stricta*	Leaves	The leaves are soaked in water and with the decoction washed the cancer wounds.
25.	*Spinacea oleracea*	Leaves	Fresh leaves are cooked as a vegetable along with garlic and taken weekly for long period, mostly used for lung and breast cancer.

Table 1. 3. Showing Fruits, vegetables and herbs for the treatment of Malaria

S.NO	BOTANICAL NAME	LOCAL NAME	FAMILY
1.	*Abutilon glaucum*	Gulgethar	Malvaceae
2.	*Achillea wilhelmii*	Boh-E-Madran	Asteraceae
3.	*Artemisia scoparia*	Red Jir	Asteraceae
4.	*Citrus limonia*	Lemon	Rutaceae
5.	*Coffe Arabica*	Coffee	Rubiaceae
6.	*Citrus aurantium*	Orange	Rutaceae
7.	*Citrum medica*	Mitha	Rutaceae
8.	*Ephedra intermedia*	Naromb	Ephedraceae
9.	*Ipomoea batatas*	Sakar Kandi	Convolvulaceae
10.	*Jubertia aucheria*	Thusso	Rubiaceae

11.	*Juglans regia*	Akhrot	Juglandaceae
12.	*Juniperus excelsa*	Apurs	Cupressaceae
13.	*Lactuca sativa*	Salad	Compositeae
14.	*Luffa aegyptiaca*	Ghia Tori	Cucurbitaceae
15.	*Microcehala lamellate*	Pehunpulli	Asteraceae
16.	*Momordica charantia*	Karela	Cucurbitaceaea
17.	*Nepeta praeteruisa*	Simsok	Lamiaceae
18.	*Punica granatum*	Anar	Punicaccea
19.	*Prunus Cerasus*	Cherry	Rosaceae
20.	*Psammogeton biternatum*	Izbotk	Apiaceae
21.	*Phoenix dactylifera*	Khajoor	Palmaceae
22.	*Saccharum begalense*	Kashum	Poaceae
23	*Salvia bucharica*	Gul-E-Kakar	Lamiaceae
24.	*Thymus linearisisbenth*	Tormori	Lamiaceae
25.	Vitis vinifera	Angur	Vitacea

Table 1. 4. Showing part used and traditional recipes of Fruits, vegetables and herbs for the treatment of malaria.

No.	BOTANICAL NAMES	PART USED	METHODS OF PREPARITION
1.	*Abutilon glaucum*	Whole plant	Abutilon glaucum + salvia cabula (Matetav) boiled in Water and used early in the morning befre breakfast For twelve days.
2.	*Achillea wilhelmii*	Whole plant	The whole plant is soaked in water and decoction is Used early in the morning for a month.
3.	*Artemisia scoparia*	Whole plant	The whole plant is boiled in water and one cup of decoction is taken daily for five days.
4.	*Citrus limonia*	Fruits Juice	Citrus limonia+black pepper+heat for one minute and takes twice a day for two to three months or

			Green tea citrus limonia juice + taken daily at afternoon time for a month.
5.	*Coffea Arabica*	Dried Leaves	Dried leaves are boiled along with water and suger two cups of decoction is taken daily along with lemon juice for forty days.
6.	*Citrus aurantium*	Fruits	Used as a fruit or or extract the juice of fruit and taken daily for a week.
7.	*Citrum medica*	Fruits	Used as a fruit daily,or make the juice of fruit mixed with lemon and taken daily for a month.
8.	*Ephedra intermedia*	Whole plant	The whole plant is boiled in water and one cup of decoction is used daily for two months .
9.	*Ipomoea batatas*	Leaves	The leaves are boiled in water and decoction is used For a month at night.
10.	*Jubertia aucheri*	Whole plant	Dry powder of leaves and flower are mixed in the milk and used daily after meal.
11.	*Juglans regia*	Dry seeds	Take the dry seeds and mixed wih milk and taken Thrice a day for a month.
12.	*Juniperus excela*	Seed Leaves	Seeds are boiled in water and decoction is applied on body at night weekly.or seeds are mixed with Microcephala sp and Teucrium stocksianum and these all are boiled in water and decoction is used daily for five to ten days.
13.	*Lactuca sativa*	Dried leaves	Leaves are dried and made the powdered .and decoction is used daily with one cup of water for seven days.
14.	*Luffa aegyptiaca*	Fruits	Made the soap of fresh fruit along with garlic andeaten during the meals for twenty days or less.
15.	*Microcephala lamellate*	Whole plant Leaves	Microcephala lamellate+Teucrium stocksianum (kalpora) boiled in water and one cup decoction is used morning and one cup in evening.
16.	*Momordica*	Fruits	Fruit juice mixed with water and drunk after meals

	charantia	Juice	weekly.
17.	*Nepeta praeteruisa*	Leaves	Tea is made from the leaves and eaten early in the morning before meal for twenty five days.
18.	*Punica granatum*	Fruits Juice	Fresh fruits are crushed and one cup of the juice is given to the patient twice a day after the meales.
19.	*Prunus Cerasus*	Fruits	Used as a fruit daily in large quantity.or used as a Juice daily for long period of time.
20.	*Psammogeton biternatum*	Whole plant	The whole plant is grinded to form powder,which is taken with water twice a day for twenty days.
21.	*Phoenix dactylifera*	Fruits	Made the paste of fruit mixed with milk and eaten daily Early in the morning before breakfast .
22.	*Saccharum begalense*	Seeds	Seeds of saccharum begalense+misry grinded and to make powder and used with tea at night for three days.
23.	*Salvia cabulica*	Whole plant Leaves	The leaves are soaked in water and the decoction is Used early in the morning for twelve days.
24.	*Salvia bucharica*	Flowers Leaves	The whole plant is soaked in water and decoction is used for fifteen days after breakfast.
25.	*Vitis vinifera*	Fruit Juice	Juice of fruit is extracted and mixed with milk and used daily for long period of time. Or used as a fruit daily.

4 Conclusion

In the present study, 50 medicinal plant species of 32 families used to treat cancer and malaria were reported and documented .The majority of the reported species are wild and rare. Therefore, it is important to conserve such vital resources to optimize their use in the primary health care system. The most dominant ant malarial plant bearing families were Rutaceae (3species), and Lamiaceae (3species). Moreover, the most dominant anticancer plant bearing family was Cucurbitaceae (4species). Now days, conservation of traditional knowledge is very rare due to a lot of factors related to modernization of the region and lack of interest in traditional healers, in transferring to the next generation. If the indigenous knowledge is transferred evenly from older to younger generation, it will help to discover more uses of medicinal plants.The results are equally

applicable to define the effects of using fruits, vegetables and herbs without any scientifically based approach for its sustainable use and it is intended to facilitate the rapid use of results and the active participation of all partners. It is expected that my work will play a vital role for the students who want to carry out ethnic botany surveys in any other part or area of Balochistan.

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