FIELD STATUS OF MEDICINAL PLANT *ARTEMISIA MARITIMA* L. IN KASHMIR HIMALAYA

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Abstract: In India, the state of Jammu & Kashmir is endowed with a valuable and fascinating variety of plant resources including the medicinal plants which have attracted people since earlier time's .The potential and importance of these medicinal plants has gone unrecognized and even mistaken for cheap resources and consequently its unsystematic exploitation has increased. This paper discusses economic aspects and field status of *Artemisia maritima L.* and how this important medicinal plant has been exploited and the need to conserve it.

Keywords: Field status, Medicinal Plant, *Artemisia maritima*

INTRODUCTION

The west Himalaya region has a rich and interesting flora, many species of which represent the floristic elements of Europe, North America and other temperate regions of the world. A large number of plants, as such are collected as raw material for pharmaceutical and essential oil industry. Exploitation of various plant raw material for medicinal and aromatic use has been done since ancient time but their collection from wild sources did not cause much disturbances to natural stock as these were utilized only on a limited scale of remedous advances in the field of drug pharmaceutical and essential oil industry in recent years however, have gernated a great demand of these plant products. This has resulted in large scale collection of many plants from the thus pushing wild population to the verge of extinction. Mention in this regard may be made to the species like *Artemisia maritima* L. the Indian source of santonin whose habitat have so drastically reduced that they are deemed to be in immediate danger of extinction.

***Artemisia maritima* L.**

Family: Asteraceae

Distribution:

It is found in the Western Himalaya from Kashmir to Kumaon, at 70000-9000.It is widely distributed all over the northern hemisphere of the old world. This is the only santonin bearing species in occurring India. The species is common in some areas of North West India, such as Kashmir, Kishtwar, Kurram, Kagan etc. But plants growing only in certain areas of Kashmir have been found to contain santonin (Anonymous 1972). In Jammu & Kashmir state Kishtwar and Gurez are reported to be only regions containing natural populations of the species (Bhagat and sing, 1989). *Artemisia maritima* L. is highly habitat specific flourishes well in open hilly slopes with well drained soil and xerophytic habitat.

Species description:

The plants are perennial shrubs, with a tap root that goes deep into the soil. The much branched stem from the base attain a height up to 100cm bearing 1.3 to 6cm long 2-pinnatisect leaves grey to white green in colour. The flowers arise in axillary spikes terminating into reddish or yellowish heads. Flowering and fruiting occur during October-November.

Importance of the species:

Ethnomedicinal importance:

In the state of Jammu & Kashmir, large number of ethno-botanically, important species are available due to its rich phytodiversity. Several studies have been carried out to document the eithnobotanical information from this region. Ethno botanical survey of this state has yielded interesting results about the ethno medicinal use of the species. In different parts of the state it is used for the treatment of various ailments.

In Gurais valley Kashmir:

1. Decoction of leaves given to expel round worms in children. Extract of leaves with curd is used as antidandruff.
2. Leaf paste applied for healing wounds.
3. Source of santonin drug (Ara and Naqushi,1992)

In Ladakh:

1. The extract of aerial position of the plant is taken orally every morning for a period of 10-15 days to cure arthritis (Nawchoo and buth, 1995).
2. The whole plant is recommended in qartric troubles specially in flatulence.
3. It is also used as an anthelimintic and antiseptic.
4. The dried powder of the plant is used externally as haemostatic on cuts, injury and wounds (Gupta, *et.al.*, 1980)

In Kashmir:

1. The decoction is used as febrifuge (Naqshi, *et.al.*,1992)
2. The aqueous leaf extract is used against intermittent and remittent fevers.
3. It is also applied externally on skin eruptions (Kaul, 1997).

In Kishtwar (area of present study):

1. Dried leaves are mixed with *anardana* and used for the expulsion of thread worms from the stomach.
2. It is also used as stomachic and laxative
3. Leaves are dried and along with *crocus* petals are tied on lower abdomen after Child birth.

Active principles and pharmacology:-

1. The medicinal properties of this plant are based on santonin present in the young leaves and flowers heads.
2. Besides santonin, the plant contains two crystalline compounds beta santonin and pseudosantonin.
3. Artemisin is another bitter principle reported to occur in *Artemisia maritima L.* (Anonymous 1972)
4. Santonin is found very effective against round worms, less so against thread worms and ineffective on *Taenia.*
5. Santonin is highly toxic; should be administered in very small qualities.
6. In larger doses it includes headaches, nausea, vomiting and convulsion.
7. The proposition of santonin is reported to be maximum just before the flowering.
8. The leaves and flowers of this plant are collected during September-October for extraction of santonin.

Aromatic uses of species: Apart from having medicinal virtues the species is also reported to have aromatic importance (Bakshi and Kaul, 1985)

1. All the varieties of *Artemisia maritima L.* contain essential oils which vary both in quantity (23%) and in composition (Anonymous 1972). Essential oil contains cineol, thujone, and camphos.
2. The commercial oil, a by product of santonin factories is a thick yellow oil (Anonymous 1972)

Exploitation of the species:

Area of study:

Kishtwar plateau (1574m) rests on the bank of river Chenab .While the slopes surrounding the plateau are covered with coniferous elements, the plateau itself is dominated by various herbaceous plants .The temperature varies from a minimum of - 2ºC in Jan to a maximum of 35ºC in July. Some areas experience heavy snowfall in winter some areas experience moderate snowfall.

MATERIAL AND METHODS

Different localities of kishtwar and its adjacent areas were surveyed during the year 2005-2006. During the field trips personal interviews were conducted with local people. The information was cross checked by repeated enquiries. Data regarding the extraction of the species was collected from the Forest department. All this helped us to find the field status of the plant species.

Exploitation of the species:

Collection of the species:

Up to 2004 the collection was generally done by the local villages, shepherd tribes and gujars. Small quantities were collected during spare time dried and stored in the house till disposal. The material was either sold to the agent of crude drug seller in the plains or at the nearest market. Sometimes large scale collection was organized by the contractors, agents of large crude drug seller or even the drug pharmaceutical houses. In Jammu & Kashmir collection and sale of *Artemisia maritima L.* is controlled under Kuth act. Where the material was collected and sold only by the Forest department. They were marketed by the forest corporation of Jammu & Kashmir. *Artemisia maritima* L. is one of the important minor forest products of J&K and it has been extensively extracted from J&K forest division. Out turn of this impt.minor forest product in J&K is presented in table 1.

Table 1. Turn over minor forest product *Artemisia maritime* in J&K state from 1959-2003

Name of Minor Forest Product	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70
Artemisia maritima	2.98*	387.87	1.67	388.63	0.50	431.00	435.00	301.42	297.5	616.84	530.15

Name of Minor Forest Product	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81
Artemisia maritima	908.96	526.50	878.49	644.87	286.58	2632.23	448.75	648.66	1615.3	1170.01	2151

Name of Minor Forest Product	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Artemisia maritima	276.00	….	….	….	507.00	326.00	….	736.00	500.00	600.00	….

Name of Minor Forest Product	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03
Artemisia maritima	…	…	992.00	….	….	500.00	….	….	496.00	….	328.00

*= weight in quintals
Source:- Anonymous (2000)

In Kishtwar, upto 1985 large quantity of this plant species was collected and sent to Baramulla, Kashmir for the production of santonin .Messers Kashmir pharmaceutical works in a factory located at Baramulla, Kashmir produce santionin from extracted *Artemisia*. The factory produces nearly 2200lb of santonin per year from about 100 tons of Artemisia (Anonymous 1972). The Bengal chemicals and pharmaceutical works, Calcutta and messers Mehta brothers of Amritsar, also produce some santonin. The total internal consumption in India is estimated at 1000-1200lb.a year, and in 1945 the price per ounce was Rs. 14-16 (Anonymous 1972).

In Kishtwar areas of Jammu & Kashmir alone during the year 1970-71 ,as much as much as 370.5 quintals of *Artemisia maritima* collected ,where as it came down to 146.2 quintals in 1976-79 , resulting in a 60% production in its population (Anonymous 1978-79).The reduction in collection resulted from dwindling population of the species .Due to the construction of dul hasti hydroelectric project, the habitat of the species has either degraded or reduced on account of road building and other infrastructure facilities created for this project. It is also used as fodder plant by the local people of this area for their sheep and horse (cattle) Plate (1a-d). Consequently the field status of its population has considerably declined.

Present status:

Recent surveys in the Kishtwar area have revealed that this species has almost disappeared from most of the localities where it was common. The localities once recognized as basic habitat of the species, now to carry isolated plants. Although Govt. of J&K has banned the extraction of this important minor forest product in September 2004 but this is still reaching the market and extensively exploited by the local people as a fodder plant. It is feared that plant will be completely exterminated within a short span of time if no immediate steps are taken. The species thus call for immediate studies to formulate strategies for its conservation.

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