

**Research Article**

## **ETHNOBOTANICAL STUDY AND SOCIO-ECONOMIC SURVEY OF CANNABIS SATIVA**

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### **ABSTRACT**

Ethnobotanical studies and socio-economic survey of *Cannabis sativa*, was carried out in 21 villages of Shimla District of Himachal Pradesh. Ethnobotanical study provides information about the agriculture status of *Cannabis sativa*. This plant is actually a multi-purpose plant fulfilling the different necessities of daily life, e.g. food, medicine etc. It is cultivated as companion crop with Amaranthus, Chenopodium, Eleusine, Fagopyrum and maize. Socio-economic survey provides prime information about *Cannabis* crop and status of *Cannabis* in the society. People in these areas also use the male plants for extracting fibre, from which they make ropes, sacks and footwear (Poolen) for their daily use. Present study has set a new approach to study the utility of such plants as of great economic return (for fibre, food, oil, medicine and fuel) and may be helpful in developmental plans.

**Key Words:** *Cannabis, Ethnobotany*

### **INTRODUCTION**

Ethnobotany is the branch of science which deals with the relationship between plants and primitive societies. It deals with various economic uses of plants among tribals or aboriginals or in other words it acts as a bridge between primitive societies and plants as they have been an integral part of their life. Extensive studies have been carried out on *Cannabis*. Chopra *et al.* (1956) have given some common vernacular names of this plant in different languages and described its uses, Dastur (1963,1970) described *Cannabis sativa* as important medicinal plant in addition to its use as fibre, food, fuel, oil and narcotics. Sharma (1977) reported that in the Himalayan region *Cannabis* is used mostly by lower economic and educational strata of society. Tashkin *et al.*, (1977) described its therapeutic properties, Singh and Jindel (1980) conducted some studies regarding the use of *Cannabis*, Maheshwari (1983) stated that young people abuse *Cannabis* for deriving mood changes including giddy euphoria, time distortion and other psychotomimetic effects. Verma (1980) reported that *Cannabis* causes great amount of cerebral excitement and hypnotic effect. Kaymakcalan (1981) reviewed the literature on the dependence potential of *Cannabis* and reported that *Cannabis* tolerance characteristics are similar to those of opiate dependence and Kraus (1981) found that criminality of delinquent abusing *Cannabis* was less than that of delinquent controls.

Himachal Pradesh is considered as one of the best areas for such studies due to its richness in primitive societies. These can help the modern societies by disclosing their century's old secrets regarding the use of wild plants as food, fibre, fodder, medicines or other useful purposes in their daily life. *Cannabis sativa* is one such plant. It is a multi purpose but most misunderstood plant.

In Himachal Pradesh, it grows widely with distributional range of 300 – 3000 m AMSL. But in some remote areas or interior parts of H.P. it was used to be cultivated as a fibre, as well as food grain crop. Therefore, it was thought desirable to work on the detailed ethnobotanical aspects of this multipurpose plant and non-conventional crop of the interior parts of Himachal Pradesh. The objective of the present study are:- (i) Ethnobotanical studies revealing methods of cultivation harvest, cropping pattern,

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consumption and association of *Cannabis* with folk life. (ii) Socio-economic survey of the area with special emphasis on population structure and the proportion using *Cannabis* for different purposes.

## MATERIALS AND METHODS

Socio-economic survey in the different remote areas of Shimla hills was conducted. Many people belonging to different walks of life were interviewed to get the information about the use of this plant, i.e. *Cannabis sativa* for both wild and cultivated population. Number of villages were surveyed (Table 1) and ten people from each village were interviewed. Labourers working for the construction of roads, bridges, houses and also those working in the orchards were included.

**Table 1: Showing the tehsil of Shimla district and the names of the villages surveyed**

| Sr.no. | Tehsil   | Names of villages          | Distance from the main road |
|--------|----------|----------------------------|-----------------------------|
| 1      | Chopal   | Srain, Dhabas, Dalt Nagar  | 200m,100m,200m respectively |
| 2      | Chirgaon | Dhamwari, Juni, Jhatwari   | 100m,3Km,2Km respectively   |
| 3      | Jubbal   | Dochi, Sundall, Jachli     | 100m,100m,1Km respectively  |
| 4      | Kotkhai  | Chool, Kundli, Pandli      | 500m,2Km,2Km respectively   |
| 5      | Rampur   | Bihae, Nilhar, Padamnager  | 100m,100m,100m respectively |
| 6      | Rohru    | Karalish, Dashedni, Shakli | 500m,1Km,3Km respectively   |
| 7      | Theog    | Baloo, Bharyana, Tikkar    | 2Km,2Km,3Km respectively    |

Introduction with the local people was quite exciting and fruitful for the ethnobotanical studies. While taking data following factors were taken in to consideration:-

1. Number of family members, annual income and land area owned by the family.
2. Geographic location of the locality and also its distance from the main road.
3. Cropping patterns as practised with *Cannabis* and ways of its cultivation and harvest.
4. Information was also collected about various ways of consumption and recipes of dishes.
5. Association of *Cannabis* with folk-songs was recorded from people through interviews.

The help of interpreters was sought, wherever, it was thought necessary to understand the dialect of the local people. This data was collected from the seven tehsils of Shimla district of H.P.

## Results & Discussions

In some interior and remote areas of Shimla district of Himachal Pradesh, *Cannabis* is cultivated in the form of pure (Fig. 2) or mixed stands (Fig. 3 & 4) in the fields or on the marginal lands. It also grows abundantly as wild plants. Cultivated populations are much larger and are mostly meant for fibre while wild forms are used for other purposes. Socio economic survey of the area in relation to *Cannabis* cultivation has been presented in table 2, while the information regarding the cultivation of *Cannabis* has been shown in table 3 .

As is clear from table 3 that *Cannabis* is a summer or kharif crop and is sown in the months of March or April. Seeds are sown by broadcasting in the fields and then covered with soil. Companion cropping with *Amaranthus* (Fig.3), *Chenopodium*, *Eleusine*, *Fagopyrum* and maize (Fig. 4) is the most preferred pattern of *Cannabis* cultivation. It is believed that in inter-cropping, the plants of *Cannabis* cause damage to the other crops, so people prefer to grow them on the side track or bordering strips of the fields. Sometimes pure cropping is also practised.

*Cannabis* is harvested only once in a year, the phenological cycle is approximately 200-220 days. Male plants are cut, when their flowers open and are processed for fibre. The female plants remain in the fields and seed are collected at maturity in the month of October or early November.

From general observations, it was found that the use of *Cannabis* is not related to the number of members in a particular family or the land area acquired by it. However there was a definite positive relationship between its cultivation and remoteness of the area. Farther the area from the highway, more is the

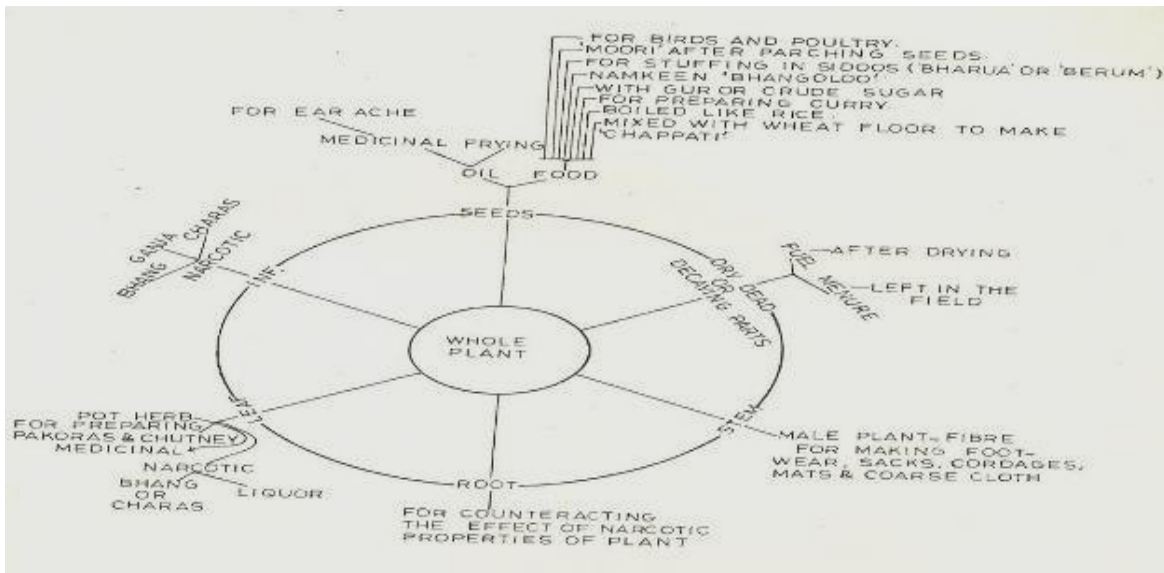


Figure 1: Various ways of consumption of Hemp plant

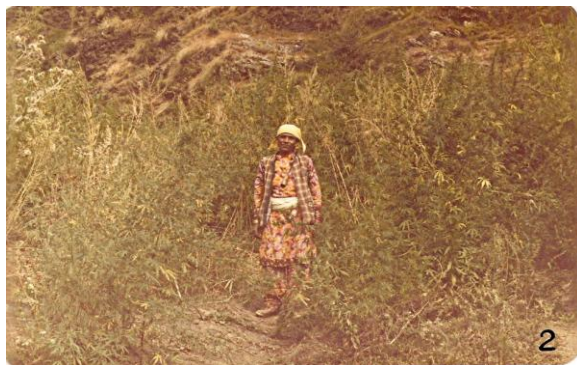


Figure 2: Marginal pure stands of *Cannabis sativa* in the field of village Sarain of Chopal tehsil



Figure 3: Mixed cropping pattern of *Cannabis sativa* along with the plants of *Amaranthus* and maize. Simultaneous flowering of male and female plants are clearly visible in the picture



Figure 4: Cultivated *Cannabis* population showing mixed cultivation with maize



Figure 5: Footwear (Poolan) made locally from the *Cannabis* fibre

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**Table 2: Socio-economic survey in relation to *Cannabis* cultivation**

| Sr.No | Parameter   | Results          |
|-------|---|------------------|
| 1     | Families cultivating <i>Cannabis sativa</i>                             | 75%              |
| 2     | Consumption of <i>Cannabis</i> 15 years ago                             | 98%              |
| 3     | Consumption of <i>Cannabis</i> at present                               | 90%              |
| 4     | Annual income of families growing <i>Cannabis</i>                       | Rs-5,000-10,000  |
| 5     | Number of family members  | 6-14             |
| 6     | Cultivated land area owned by families                                  | 6-80 Bighas      |
| 7     | Altitude of the locality  | 1890-2350 m AMSL |
| 8     | Mixed cropping system and <i>Cannabis</i>                               | + (Yes)          |
| 9     | Consumption of cultivar leaves and inflorescence                        | + (Yes)          |
| 10    | Consumption of cultivar stem  | + (Yes)          |
| 11    | Consumption of leaves of non-domesticated Population                    | + (Yes)          |
| 12    | Consumption of cultivar seeds   | + (Yes)          |
| 13    | Consumption of non-domesticated seeds                                   | + (Yes)          |
| 14    | Utilization of <i>Cannabis</i> leaves for narcotics                     | + (Yes)          |
| 15    | Utilization of <i>Cannabis</i> for fuel.                                | + (Yes)          |
| 16    | Utilization of <i>Cannabis</i> for manure                               | + (Yes)          |
| 17    | Utilization of <i>Cannabis</i> roots and flowers for medicinal purposes | + (Yes)          |

cultivation and consumption of *Cannabis*. It has also been observed that ‘Bhang’ consumption is more in economically backward people.

Survey was also conducted regarding the food habits of the people and it was found that *Cannabis* seeds are frequently used in winter for eating. Data was also recorded about the various ways of its consumption. It was observed that every part of this plant starting from the stem (for fibre and fuel) leaves (for smoking or drinking i.e. as hallucinogen or narcotic, pot herb and as medicine) , lowering tops (Charas, ganja and hashish etc.) , seeds (for food and oil) and roots (juice extracted from the roots is given to the people to counteract the hallucinogenic effects induced by taking bhang, ganja etc.) are used in one way or the other (Fig. 1). From stem of the male plants, fibre is extracted which is very strong and it is used by the local people for making footwear known as ‘Poolan’ (Fig.5)

In addition to the above mentioned uses as food, fibre and oil, *Cannabis* play a very significant role as folk medicine. ‘Soolpha’ is prepared from the female tops of the plants. It is smoked as such or sometimes with tobacco by the local people. Smoking habit was found to be very common even among the women folk in the remote part of study area.

The study reveals direct correlation of the *Cannabis* cultivation to the poverty and backwardness of the people. It was found that although *Cannabis* is used mostly by the poor people in one way or the other, the use of this plant for narcotic purpose is done at the both ends of the economic scale as was also reported by Darshan *et al.*, (1981) based on their studies in rural area of Punjab.

The real indigenous culture of any place is reflected in its folklore, folk songs and folk-tale. It was found that folk songs have profuse reference to *Cannabis* in the study area. Folk songs are sung at the time of joy or sorrow or in festivals, ceremonies and rites in the memory of lovers or beloved. Some folk songs like “ Main ‘pang’ aya pee , shivji di jo buti,yaro najara aa gya, sajjno hulara aa gya” and “ Ashki pipli , porkhi bhango, teri aanke ra surma ,meri naino mango teri shadaro kande” etc. reveal that *Cannabis* is intimately associated with the cultural and social life of local people and also describes mainly about the hallucinogenic properties of the plant. The greatest hallucinogenic importance in religious context is considered in the Himalayas of India and Tibetan plateau (Schultes and Hafmann, 1979). These songs in general reveal the narcotic effects, religious bent etc and show that *Cannabis* forms one of the important crops in hill agriculture, although no record were found in the statistical outline of Himachal Pradesh.

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**Table 3: Agronomic Practices in the field**

| Sr. No. | Activity                                 | Remarks   |
|---------|--|---|
| 1       | Planting                                 |   |
|         | a) Time of sowing<br>b) Method of sowing | March-April<br>Broadcasting   |
| 2       | Cropping Pattern                         | Pure or companion cropping on the side tracks of Chenopodium, Amaranthus, Eleusine, Fagopyrum or maize crops. Some times intercropping is also practiced. |
| 3       | Tilling-up                               | Not needed.   |
| 4       | Fertilizers                              | Not needed.   |
| 5       | Irrigation                               | Not needed  |
| 6       | Phenological period                      | 200-220 days  |
| 7       | Initiation of Flowering:                 |   |
|         | a) Male plants                           | Flowering starts in the month of June-July  |
|         | b) Female plants                         | Flowering starts in the month of Mid-August-October.  |
|         | c) Male and Female simultaneously        | Occasionally in the month of October  |
| 8       | Harvesting                               |   |
|         | a) Time                                  | October or early November.  |
|         | b) Method                                | Cutting of plants about 10-12 cms. From the base , when male flowers open fully i.e. in August.   |
|         | i) Male plants<br>ii) Female plants)     | When seeds get mature in October or early November.   |
|         |  |   |
| 9       | Processing:                              |   |
|         | a) For fibre                             | Retting of the stems of male plants   |
|         | b) For seeds                             | Manually from female plants.  |
|         | c) Seed clearing                         | Manual i.e., by hands (thrashing).  |

To sum up ethno botanical study provided the recent information about the present agricultural status of *Cannabis sativa* as a food grain crop. Socio economic survey provides prime information about a crop and its status in the society. Such studies may help in developmental plans utilizing the opportunity of introduction and also for feed-back , firstly for the response and reaction of primitive people to the usefulness of the wild plants and secondly of folk medicine for organized scientific testing.

The survey makes it amply clear that *Cannabis sativa* or 'Bhang' has played a great role to meet all kinds of possible requirements in Indian folk life. In spite of the different harmful effects the use of this plant is continuously increasing throughout the world . Now-a-days, a controversy is going on as to whether the use of this plant is a vice which should be controlled or a habit that should be permitted legally. The subject is a burning problem among workers of Cannabis.

Keeping aside all the harmful effects of this plant, our present studies regarding ethnobotany of *Cannabis* has set a new approach to study the utility of such plants as of great economic return (for fibre, food, medicine and fuel) while planning for exploitation of the under exploited crops.

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