Papaver somniferum
Opium Poppy
AIMS AND OBJECTIVES:

India's drug law enforcement strategy is focused on combating the trafficking and illicit manufacture of narcotic drugs. The Government of India has taken a series of measures both statutory and administrative as a part of this strategy. The first major step was the enactment of a comprehensive Narcotic Drugs and Psychotropic substances (NDPS) Act in 1985, which currently conflagrates the statutory framework for drug law enforcement of India. Consequent to the 1988 conversion against illicit traffic in Narcotic drugs and psychotropic substances, Govt. of India amended the NDPS Act in 1989 in order to establish infringement relating to precursors as punishable offence and to provide for the forfeiture of drug related arrests. In 1993, the NDPS order was promulgated for Regulation of controlled substances. This order sets out the detailed rules and procedures governing the manufacture, distribution, trade, import, export, etc., of specified precursor chemicals. Stringent punishment for violations is up to 10-12 years imprisonment with Rs. 1 to 2 lacs fine which may extend up to death penalty on repeat of offence.

The cannabis plant grows wild and is also cultivated illegally in certain parts of the country. The plant is widespread geographically especially in the north-east as well as Andhra Pradesh, Kerala, Tamil Nadu, Himachal Pradesh and Jammu and Kashmir. Cannabis is most commonly used narcotic drug among poor and weaker section of our society but it is a highly profitable for those persons which are main sources. Therefore the control of cannabis trafficking is important for law enforcement agencies. Investigating agencies find that it is difficult to establish the main source of origin of seized cannabis. It is because, the appearance, composition and quality of cannabis depend upon many factors such as climate, soil, attitude, method of cultivation, age and variety of plant. However it is possible to establish geographical origin of cannabis through Chemical, Physical and Botanical examinations.

In view of the above facts, it was considered worth while to examine the cannabis samples of various regions of Chhattisgarh State and establish a centralized data bank for its source identification.
At present there is no centralized data bank on the geographic origin of cannabis samples in Chhattisgarh state. In the present study detailed examination of large number of cannabis samples was to be undertaken to establish a data bank on the Botanical profile constituents of Indian cannabis.

Investigating agencies have to focus on the primary areas for effective control and enforcement over narcotics activities.

i. **Strict surveillance and enforcement at import and export points, land borders, airports, foreign post offices etc.**

ii. **Intensive preventive and interdiction efforts along known drug routes.**

iii. **Improved coordination between the various drug law enforcement agencies in order to impart greater cohesion to interdiction.**

iv. **Identification of illicit cultivation of opium poppy and the wild growth of cannabis and eradication of these sources of supply.**

v. **Building of an electronic database of offenders, and suspects.**

vi. **Building of database of seized samples and its characterization.**

vii. **Targeting illicit manufacturing units of narcotic drugs.**

viii. **Passenger profiling for identification of members of trafficking groups.**

The present study is based on three years case data and sample collection of seized exhibits of narcotic cases of 2002, 2003 & 2004 which are registered in different police stations of Chhattisgarh state. The analysis of the case data for physical characterization, illegal trafficking, route and mode of transportation, etc and seized samples for chemical, botanical, instrumental characterization to make a data base system. This data base system may be useful to the different law enforcement agencies involving in the implementation of NDPS act. This characterization not only provides sufficient proof of ideality for the judicial purpose, but may also assist in establishing
trafficking patterns and eventually the sources of the products, establishing link between seized samples, classify material from different seizures into groups of related samples to build up distribution network, identify the source including geographic origin of a drug sample. This information can be used as evidential purpose. Such characterization and comparative profiles are available today for cocaine, heroin, and opium, not for cannabis.

Scope of the present work

The scope of the present work was to analyze Indian cannabis samples legally or illegally cultivated in and outside of Chhattisgarh and illicitly trafficked to this state from other surrendering states. The chemical constituents and colour, size of leaves, seeds, parts of flowers, hairs etc. have been chosen for the analysis of cannabis samples after detailed review of literature.
Study Area & Sites
STUDY AREA AND SITES:

Chhattisgarh State at a Glance:

Chhattisgarh is located in Central India. This state possesses high amount of biodiversity. The state has more than 44% of its area covered with tropical deciduous forests. Brief information about the state are:

Fig. 1: Districts of Chhattisgarh State.

Position: 17°46' to 24°06' N latitude and 80°15' to 84°51' E

Longitude

Area: 135,133,89 kms. (4.14% of India)
Surrounding States: Uttar Pradesh, Madhya Pradesh, Jharkhand, Orissa, Andhra Pradesh and Maharashtra.


Administrative Districts

District:
(i) Raipur (ii) Dhamtari (iii) Mahasamund
(iv) Durg (v) Rajnandgaon (vi) Kawardha
(vii) Bastar (viii) Dantewara (IX) Kanker
(X) Bilaspur (XI) Janjgir Champa (XII) Korba
(XIII) Raigarh (XIV) Jaspur (XV) Surguja
(XVI) Koriya, Note : Bijapur, Narayanpur, Balrampur and Surajpur are Police districts only.

Most of the Northern and Southern area of the state is thickly forested.

Geography : Chhattisgarh is one of the few land locked state in the country. Uttar Pradesh and Jharkhand bind the state in the North, in the east it is bound by Orissa, in the South by Andhra Pradesh and in the West by Madhya Pradesh and Maharashtra. A large part of the state comes under Vindhyaachal range that divides the Indian subcontinent in to two. Physiographically the area of state is divisible into northern hills central plain and southern plateau.

Climate : The state has tropical climate with hot summer and cold winters. Average rainfall of area is about 1600 MM. Most of the precipitation occurs during the Mansoon (Mid June to Mid September). Day temperature during the summers can touch a high of around 45 ° C, While in the winters the temperature may fall well below 10°C. Natural wetlands are extensive, the area is thus dotted with natural and artificial wetlands. Not a single patch of the state comes under xeric area.
Soil: Hot and humid climate favour laterisation. The red and yellow soil cover most of the part. The other soil types are red loamy, red-sandy, literee and black, all of them formed in situ. Most of Bastar district is covered by red loamy and sandy soils. Literate soils are found over the south of Mainpat plateau of Sarguja, the adjoining parts of Bilaspur and Durg districts and near Jagdalpur area. A deep black soil extends over the heartland of Raipur district and western part of Bilaspur and Rajnandgaon districts. The soil varies according to the topographical conditions in the region.

Forests: The state has about 44% of its area under forest cover making up of about 12% of national forest cover. The forests of the state fall under two major types i.e., Tropical Moist Deciduous forest and the Tropical Dry Deciduous forest, divisible into about 22 forest sub-types. From the management point of view, there are four types of forests, viz: Teak, Sal, Bamboo and Miscellaneous forests in the state. The forest of state is identified as one of the richest bio-diversity habitats. Biogeographically the state falls under Deccan biogeographic region.

Mode of connection:

Chhattisgarh state is well connected with surrounding states and rest of India by road and rail. Howrah Mumbai Main rail line passes through the state from Maharashtra to Orissa. Another rail line goes to Madhya Pradesh from Bilaspur and to Orissa and Andhra Pradesh from Raipur. Bastar is also connected to Visakhapattnam by road and rail, and to Secundrabad by road.

There are five national highways across the state. Apart from national highways there are number of state highways connecting the importing regions within the state.
Main routes of entrance in the state of Chhattisgarh are:

**By road:**

1. **From Madhya Pradesh**
   
   (i) Katni to Ambikapur via Manendragarh. (ii) Katni to Ramanujganj via Jaisingnagar.
   
   (iii) Jabalpur to Bilaspur via Amarkantak. (iv) Jabalpur to Bilaspur via Pandaria.
   
   (v) Jabalpur to Raipur via Kawardha (N/H) (vi) Rewa to Bastar via Kawardha.

2. **From Maharashtra**:

   (i) Nagpur to Saraipali via Raipur (N/H)

   (ii) Chandrapur to Kanker via Manpur

3. **From Andhra Pradesh**:

   (i) Bhadrachalam to Jagdalpur via Konta.

   (ii) Visakhapatnam to Jagdalpur via Koraput.

4. **From Orissa**:

   (i) Sambalpur to Raipur via Saraipali (N/H)

   (ii) Rourkela to Ambikapur via Pathalgaon

Figure 2 : Roads Network of Chhattisgarh State
5. From Jharkhand:
   (i) Ranchi to Ambikapur via Jaspurnagar
   (ii) Daltanganj to Ambikapur via Ramanujganj (N/11)

By train:

1. From Madhya Pradesh
   (i) Katni to Bishrampur / Chirmiri via Manendragarh
   (ii) Katni to Bilaspur via Anuppur

2. From Mahashtra
   (i) Nagpur to Raigarh via Dongargarh

3. From Orissa
   (i) Jharsuguda to Raipur via Raigarh

4. From Andhra Pradesh:
   (i) Visakhapattnam to Raipur via Mahasamund
   (ii) Visakhapattnam to Jagdalpur via Koraput.

Figure 3. Railway Network of Chhattisgarh State