1.

INTRODUCTION
The large Melghat tract is a hilly terrain of Satpuda ranges, reaching the height up to 3400 feet. The Melghat region is entirely different from the rest of the districts from climatological, agronomical and florestic point of view. The tiger reserve covers an area of 1676.23 sq.km. of Melghat forest. Botanical point of view it is very important as bioreserve. Total number of 1151 species belong to 638 genera from 126 families were described by Dhole (1986). Melghat forest falling between the latitudes 21°.15' N and 21°.45' N and longitudes 76°.57' E and 77°.33' E. It is situated in the mount region, the Gavilgarh hills of Satpudas from Chikalda to Dhami, a tahsil place of Amravati District, Maharashtra state.

The climate of Melghat forest, is characterized by a hot summer and general dryness throughout the year except during the south west monsoon. The rainfall in different localities varies, changes according to altitude and topography. In Chikalda area average rainfall is 1784 mm. The average number of rainy days for this place is 78.8. Rainy season starts from June and remains till September and some times in October to November. Cold season starts from December and remains till February. Hot season is from March to Middle of June. Temperature in different localities of the Reserve vary with the altitude. In Chikalda maximum temperature in month of May is 35 °C and minimum 23 °C. In winter months maximum temperature is 22 °C and minimum 13 °C. The soils of the reserve are variable in depth, types are Bould, Red-brown, Murram and Clay soils. Leguminosae is the largest family, comprises 98 species followed by Gramineae with 92, Asteraceae- 47, Cyperaceae- 24 Euphorbiaceae- 23, Lamiaceae-22, Acanthaceae-22, Scrophulariaceae-17, Malvaceae-17 and Verbenaceae-15 species. Apart from tiger of Melghat forest for which it is known in India, different variety of wild life such as panther, nilgai, sloth bear, gour, chital, langur and wild dog etc. also occur.

The Amravati District lies between 20°.32' and 21°.46' altitude at north and 76°.37' and 78°.27' latitude at east. It occupies an area of 12,149.7 sq.km. and has a population of 12,32,780 with 13 towns and 1,968 villages. The district is divided into two different tracts. The first with a wide area of undulating plains
and blacksoil belt of fertile type and second is Melghat hilly area of dense forest of Satpuda.

The climate of Amravati district is hot during summer and dry throughout the year except during rainy season with moist conditions because of south-west monsoon. The cold season prevails from December to February and hot season from March to June. Average temperature in summer is maximum 42 °C and minimum 23 °C, and in winter season maximum 28 °C and minimum 14.7 °C. The average rainfall of Amravati district is 85 %.

The Amaravati university campus is located 5 km away from the city and approximately covers an area of 600 acres of land. The area of Amravati is well bounded on three sides by hilly tracts an area of forest department and water of the natural stream flowing across the university campus. The major plant communities and plant taxa occurring in the campus represents diversified flora. The area occupied by shrub vegetation of Gymnosporia, Acacia, Zizypus, Butea, Erythrina and other xerophytic bushes like Mimosa, Duranta, Eugenia and linas like Capparis and Aristolochia. Till today the undershrub area comprises genera like Lantana, Gymnosporia, Cynodon, Cyperus, Tephrosia, Indigofera, Vicoa, Lagesca, Perisstrophae, Cleome, Alysicarpus, Crotilaria and Acalypha.

During rainy season majority of area get occupied by wild seasonals like Leucas, Cleome, Trichodesma, Tridax, Glossocordia, Phylla, Annotis, Indigofera etc. In winter seasonal vegetation emerges both in the herbaceous and shrub form, complete area becomes green and plants flower during this season. The genera like Tephrosia, Perisstrophae, Cleome Gynandra, Alternanthera, Amaranthus, Gomphrini, Celosia, Achyranthus, Digera, Euphorbia, Acalypha, Phyllanthus, Boerhaavia, Croton, Lawnia, Sonchus Zinnia, Glossocordia, Zizypus, Mimosa species, some more are common vegetation of the area.
Map of Maharashtra
MAP OF VIDARBHA

- Amravati Region


MAP OF AMRAVATI DISTRICT

- Melghat
Ethnobotany:

The ethnobotany is derived from two Greek words ethnokos or ethnos and botanikos or botane. The term ethnobotany was first used by J.W. Harshberger in 1895 to collect the information of the plants used by primitive and aboriginal people. Ethnobotanical investigations have renewed interest in traditional medicine, particularly the herbal medicines. (Sensarma and Pal, 1995).

Ethnobotany deals with the direct traditional and natural relationship between human societies and plants. It has been recognized as a multidisciplinary sciences, comprising interesting information included in plant science, history, anthropology, culture and literature. India is very rich in ethnobotanical information. About 80% of population lives in villages, and considerable proportion of tribes living in remote forest areas. Ethnobotany is a study of the use of plants by the traditional societies of the world for various purposes. India has a second largest population in the world, there are altogether 550 tribal communities of 227 ethnic groups all over India.

Melghat has a valuable heritage of herbal remedies. Its rural people and tribals living in remote forest are still depending on the indigenous system of medicine to a great extent. Ethnobotanical information has been collected from the knowledgeable persons from Korku, Gond, Gawali which are the original inhabitants of Melghat and rural people communities of Amravati, Akola, Washim and Yeola Districts. The tribal villages of Melghat are Semadoh, Bihali, Mariumpur, Patiyar and Chikalda. The herbalist or medicine man within the tribes is called as Bhagat.

Pharmacognosy:

The term pharmacognosy was first used by C.A. Seydler (1815) in his dissertation entitled “Analecta pharmacognostica”. It is derived from two Greek words phramacon - drug or medicine and gnosis- knowledge; pharmacognosy means knowledge of drugs. It is a applied branch of science, when in practice requires a number of scientific disciplines for solving the problem pertaining to
identity, purity, quality and preservation of drugs from plants. It includes the taxonomic position of the natural sources of the products.

Pharmacognosy is the scientific study of the structural, physical, chemical, sensory characters of crude drugs of animal, vegetable and mineral origin and includes also their history, cultivation and collection and other particulars relating to the treatment they receive during their passage from the producer to the distributor or pharmacist. In short, pharmacognosy is the objective study of crude drugs of animal, vegetable and mineral origin, treated scientifically. The pharmacognocist is to identify properly the crude drugs used as such in medicine.

Anatomical structures are most likely to provide evidence to establish interrelationship of larger groups such as families or to verify the real affinities of genera of uncertain taxonomic status. Anatomy sometimes provide a very good evidence for individual identification of drug plants (Chaudhuri and Rai, 1969).

Plant plays an important role in human life. The human life totally depends on plants. Nature has provided us medicine to cure all kind of ailments. The knowledge of drugs has accumulated over thousand of years. A man desire to know the nature so that today many effective medicines are available for ensuring health-care. Plants have provided and will continue to provide not only direct usable drugs but also a greater variety of chemical constituents (Oliver and Hosteffmann, 1998) of natural origin.

In the Indian sub-continent medical care is being derived from oriental systems of medicine like Ayurveda, Siddha, Unani etc. Efforts to accept or reject these systems have many painful and pleasant surprises. The Ayurvedic system of medicine has many such interactions. The terms like native medicine, indigenous system of medicine, alternative medicines and oriental systems, have been attributed to Ayurveda but Ayurveda partially shares these and embraces much more (Pandey, 1989).
Crude drug:

The term crude drug is generally used to the product from plant and animal, found in raw material. The term is also applied to inclusion of pharmaceutical product in original form but obtained from natural sources. In pharmacognosy, the crude drug may be classified according to its alphabetical status, the taxonomy of plant from which it is derived, morphology, chemical nature of their active constituents, pharmacological actions and therapeutic applications.

Pharmacognostic studies of a plant drug.

The systematic study of a crude drug usually carried out under pharmacognostic scheme is as follows:-

1. Title, synonyms or vernacular names
2. Biological source and Family
3. Geographical source or habitat
4. Morphological or macroscopical characters
5. Microscopic or histological study
6. Chemical constituents and chemical tests
7. Pharmacological action.

Title of the crude drug is written both in English and Latin. Synonyms are identical titles of the crude drugs. This includes common or vernacular names of the crude drugs. The Latin name of the plant with its family is its botanical source; this also covers its nature, active constituent and any relevant information available in current literature. Habitat or geographical source of a crude drug gives us the information regarding a place/country of its origin. The macroscopical or morphological description of a crude drug comprises characters such as size, shape, surface, colour, odour, taste, consistency etc. Microscopical characters like stomata, trichomes, calcium oxalate crystals, strach grains and internal structure of leaf, stem, tuber, root bark, stem bark fall under anatomical studies of crude drugs. In addition stomatal number, stomatal index and veinislet number are also the essential parameters to be included under microscopic study of crude drugs.
Phytochemical test:

Today, there has been accumulated a vast store of knowledge on therapeutic properties of different plants. Carbohydrates, proteins and lipids in plants are largely utilised as food by man; in addition multitude of compounds like glycosides, alkaloids, volatile oils and tannins etc. exert a physiologic and therapeutic effect on human body. In this context it is significant to undertake a preliminary phytochemical screening of the plants for the detection of various plant constituents. Plant cells are highly sophisticated chemical factories, where large variety of chemical compounds are synthesized through definite pathways. Plants are very important renewable source of raw material for the production of a variety of chemicals those can be utilized by mankind as per the need (Bhakuni, 1997). Separation of active substances from a crude drug is called as extraction; involves the use of different solvents. The choice of the plant material for extraction depends on its nature and the components required to be isolated. The dry powder of the plant material is commonly used for extraction.

The expanding knowledge of the phytochemical screening has revealed the existence of close relationship between chemical constituents of plants and their Taxonomical status. The alkaloids, glycosides and saponins are more important chemical constituents. The alkaloids are poisonous in nature, but when used in small quantities, exert useful physiological effects on animals and human being and hence they have secured significant place in medicine.

TLC:

Among the various methods of separating plant constituents, the chromatographic method is found to be a useful technique for general application. TLC is at present an important analytical tool for qualitative and quantitative analysis of number of natural products. TLC has certain advantages over paper chromatography and GLC for screening of plants constituents. It is possible to run many samples of extracts from different chemical races at one time. Now a days TLC techniques are important analytical tools for micro-analytical separation
Psychoactive plants are those plants which possess a definite principle to alter the state of mind. Some time they stimulate the mind to exceptional thoughts, perception and vision. Psychoactive drug is of plant origin or synthetic in nature act upon central nervous system and is often described specifically as hallucinogen, stimulant, hypnotic, depressant, sedative and excitant. Hypotensive and psychoactive agents from plants are used in traditional medicine in India and South America. Ten potential psychoactive plants are selected for present study and details are given below.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Botanical Name &amp; family</th>
<th>Distribution</th>
<th>Part used</th>
<th>Reported uses or property</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><em>Baphytum Sensitivum</em> fam- Oxlaidaceae</td>
<td>In moist shaded places throughout India</td>
<td>leaf</td>
<td>For giddiness</td>
<td>Jain 1991</td>
</tr>
<tr>
<td>2.</td>
<td><em>Buchanania lanzan</em> fam- Anacardiaceae</td>
<td>In drier parts of the country</td>
<td>Bark</td>
<td>To increase the intoxicating property of mahua liquor</td>
<td>Field notes in Madhya Pradesh</td>
</tr>
<tr>
<td>3.</td>
<td><em>Buta superba</em> fam- Fabaceae</td>
<td>Forests of central and southern India</td>
<td>Plant</td>
<td>Sedative</td>
<td>Perry 1980</td>
</tr>
<tr>
<td>4.</td>
<td><em>Caesalpinia decapetala</em> fam- Caesalpiniaiceae</td>
<td>Throughout India as a hedge plant</td>
<td>Plant &amp; flowers</td>
<td>Hallucinogen</td>
<td>Schultes &amp; Hofmann 1980</td>
</tr>
<tr>
<td>5.</td>
<td><em>Cappris zeylanica</em> fam- Capparaceae</td>
<td>Common on hedges &amp; shrubs throughout planes of India</td>
<td>Root bark</td>
<td>Sedative</td>
<td>Jain &amp; De Filipps 1991</td>
</tr>
<tr>
<td>6.</td>
<td><em>Cuscuta chinensis</em> fam- Convulvulaceae</td>
<td>Greater part of India</td>
<td>Plant</td>
<td>CNS active</td>
<td>Akabar et al 1985</td>
</tr>
<tr>
<td>7.</td>
<td><em>Desmodium polycarpum</em> fam- Fabaceae</td>
<td>Throughout India</td>
<td>Leaf</td>
<td>Cause hypnosis &amp; convulsion</td>
<td>Rastogi &amp; Mehrotra 1991</td>
</tr>
<tr>
<td>8.</td>
<td><em>Dioscorea hispida</em> fam-Dioscoreaceae</td>
<td>Throughout India</td>
<td>Tuber</td>
<td>Sedative</td>
<td>Perry 1980</td>
</tr>
<tr>
<td>9.</td>
<td><em>Thevetia peruviana</em> fam- Apocynaceae</td>
<td>Throughout India</td>
<td>Latex &amp; leaves</td>
<td>Intoxicating</td>
<td>Field notes Rajasthan</td>
</tr>
<tr>
<td>10.</td>
<td><em>Vigna trilobata</em> fam- Fabaceae</td>
<td>Throughout India</td>
<td>Leaves</td>
<td>Sedative</td>
<td>Jain &amp; De Filipps 1991</td>
</tr>
</tbody>
</table>
**Biophytum sensitivum:**

*Biophytum sensitivum* belonging to the family oxalidaceae and commonly called as Lajalu or Lajavanti locally. It occurs as weed throughout hotter parts of India and also in moist shady places ascending to 1800 m. The plant is slender erect annual herb, with rosette of leaves on top of the stem. Flower is yellow, diamorphic, peduncles many slender up to 10 cm long, fruit ellipsoidal, capsule, seed prominently vidged.

It is useful in strangury, urinary calculi, hyperdipsia in bilious fevers, abscesses, asthma, pthisis, stomachalgia and snake bite. It is bitter, thermogenic, diuretic, lithnotriptic, supurative, expectorant, stimulant and tonic. *B. sensitivum* is, diuretic and good pollution indicator and leaves are sensitive to touch. Seed powder is antiseptic and applied to wounds. Plant is stimulant, convulsive and leaves are astrigent and antiseptic. The leaf juice used in dressing burns and contusion. The roots and leaves used on asthma and snakebite (Maheswari et al 1988). Leaf paste is applied to wounds and cut to stop bleeding. The plant is used in inflammatory tumors (Hartwell 1970). The plant is used as diabetics. The plant shows antiinflammatory activity (Jachak et al 1999). Detailed pharmacognostical studies of *B. sensitivum* of leaf with correct botanical identification of the crude drug, chemical composition of the powdered drug will be undertaken in subsequent chapters.

**Buchanania lanzan:**

The genus *Buchanania* belongs to family Anacardiaceae, distributed in tropical Asia, Australia and Pacific Island. Members of genus are both shrubs and trees and about seven species occur in India viz. *B. axillaris*, *B. barberi*, *B. lanceolata*, *B. lancifolia*, *B. platyneura*, *B. sessifolia* and *B. lanzan*. The English name of *B. lanzan* is Cuddapa almond, in hindi-Achar or chironji and in Marathi called as charoli.
*Buchanania lanzan* is a medium-sized tree reaching a height of 15 m, with a straight cylindrical trunk and good canopy, commonly found throughout the greater part of India in dry deciduous forest. Bark is rough, leaves are thickly coriaceous, oblong and obtuse. Flowers are small, greenish white, fruit drupe and seed stone hard. The tree has common association with sal (*Shorea robusta*). The atmospheric condition, for the growth are, maximum temperature ranging between 40 °C and 60 °C, minimum 13 °C and annual precipitation between 75 and 215 cm. This plant found in clayey and laterite soils, but does not grow on waterlogged soils. The tree flowers during Jan-March and fruits ripen during April-June. The seeds fall on the ground under tree exposed to the sun, show a very low germination. The tree can be raised by direct sowing of seeds. The kernels have a pleasant sub acidic flavour and eaten as food (Gaud and Pullaih 1996). It is a common substitute for almonds and betelnut powder. The kernels contain proteins, fats, carbohydrates, calcium and vitamin C. (Chopra et al. 1958). The seed oil is used as substitute for olive and almond oils in indigenous medicine. The plant is ethnobotanically useful. Gum has application in diarrhoea and intercostal pain (Maheshwari and Dwivedi 1988). The leaf powder is a common medicine for wounds. Bark furnishes natural varnish and it yields a dark red leather for stiff and harsh textiles. Seeds are palatable and nutritious. Oil from kernels used as substitute for a almond oil in Ayurvedic medicinal preparation. Gum used in diarrhoea and tonic (Painuli and Maheshwari 1996). *B. lanzan* possesses a psychoactive property *B. angustifolia* shows CNS depressant activity in mice (Dhawan et al. 1980).

*Butea superba* :

*Butea superba* belongs to the family Papilionaceae; commonly called as palasbel, Marathi-veliapalas, Sans-Latapalash. It is widely spread at different parts of the country.

It is a large climber, leaves trifoliate, rhomboid or broadly ovate, obtuse, flowers orange coloured. Leaves are used on piles; root and flower are used for the treatment of snakebite. Decoction of shoot acts as emollient and sedative;
Seed, stem and leaves are also sedative and anthelmintic and seeds yield fatty oils. Bark of the plant is used as tonic, roots yield fibre for ropes (Badhe and Pandey 1988). Plant acquires pollution resistant property. Presence of carbohydrates and aminoacids in leaf reported by Yadav and Reddey, 1992. Leaf juice with curds cures heat eruption in children.

**Caesalpinia decapetala:**

*Caesalpinia decapetala* (Roth) Alston. belongs to family Caesalpiniaceae commonly called as Chilati. Plant occurs throughout India along the road side and in forest area. It is a large prickly climbing perennial shrub, stem woody with drooping branches. Leaves are bipinnate, oblong, apex rounded leaflet 5-10 pairs, opposite and flowers yellow. Plant is medicinally important and juice of leaves is applied on burns. Leaves possess hallucinogenic property (Schultes, 1984). The plant shows antifertility activity (Keshri et al 1988). The 50 % ethanolic extract of root is antiviretic and hypotensive. Root extract is purgative, laxative and applied to boils. Leaves are given to animals suffering from sores in the mouth (Sebastian, 1984).

**Capparis zeylanica:**

*Capparis zeylanica* is a climbing shrub distributed throughout the greater part of India; it extends to Java and Philippine Islands. It belongs to family Capparidaceae and commonly known as Vyaghranakhi or Vaghata and in San-Ahimsra, in Hindi-Adanda. The genus includes 200 species, native of tropical and warm regions except North America and 6 species occur in India Viz. C. sepiaria, C. spinosa, C. heyneana, C. decidua, C. grandis and C. zeylanica. C. zeylanica Plant is thorny climbing shrub, wood, moderately hard, heavy, yellowish white. Leaves are ovate, 3 to 7 cm long and 1.3 to 4 cm broad; flower large, fruit smooth 5.1 cm long. Plant flower during summer and fruiting during the rainy season.

Bark is used externally and is antirheumatic and antiinflammatory. The leaves are used as a counter irritant and as a cataplasm in boils, swellings and piles.
The root bark is bitter used in the indigenous system of medicine as sedative, anti-hidrotic and on stomachache. It contains alkaloids, phytosterols, mucilagenous substances and water soluble acid (Chakravarti and Venkataswami, 1932). The plant contains l-stachydrine, rutine and b-sisterol.

_Cuscuta chinensis_: 

_Cuscuta chinensis_ belongs to family Convolvulaceae and commonly called as Amarwel or Akashwel. _C. chinensis_ is parasitic climber, distributed all over India. It is small leafless twinning herb, stem is thread like, glabrous, colour yellow to yellowish brown. Flower is white solitary, pedicels short, capsules globose 2 mm long, seed glabrous. Plant possesses antiseptic properties and extract can be used as wash in sores, seed carminative and astringent. The various parts of the plant used in dropsy, anasarca, cancer and bone fracture.

_Desmodium polycarpum_: 

The genus _Desmodium_ distributed to northern Himalayas and reaching to far southern India, Shrilanka, China and Japan. _D. polycarpum_ is common species in N. Kanara both in forest and in open fields. The genus _Desmodium_ is widely distributed in tropical habitat and is found in abundance in India. A genus is represented by two dozens species which are well known for their medicinal uses in the indigenous system of medicine. _D. polycarpum_ Linn. De. belongs to the family Papilionaceae and commonly called as Salpami. The _Desmodium_ species are known as potent hallucinogenic or psychosomatic agents (Singh 1978).

The plant is small trailing herb possesses prostrate long and slender stem. The leaves are trifoliate and used in Indian system of medicine. They are used over cough and whole plant possesses convulsion property (Malhotra & Basu 1984). The leaves of _D. triflorum_ are used to cure dysentery (Malhotra and Moorthy, 1973). The juice of the fresh plant is used as tonic. The pharmacognostic studies of the four species of the genus _Desmodium_ was carried out by (Prakash, 1985).
Dioscorea hispida:

Dioscorea hispida belongs to family Dioscoreaceae and commonly called as Baichandii. This species is native of tropical Asia and occurred in the rain forest regions. It is found throughout India, up to an altitude of 4000 ft. It is rarely cultivated. D. hispida is a very large climbing herb. Leaves are trifoliate, ovate oblong, hairy, alternate. Flower are arranged in spike, each containing 5 to 20 flowers. Tuber subglobose up to 30 cm in diameter and borne close to the surface of the soil; skin of the tuber is straw colour to grey colour. Fresh tuber is white or lemon yellow colour, poisonous, bulbiis are absent. The tubers of this species are used as famine food in parts of India (Mitre, 1990). The toxic principle is dioscorein which is distributed throughout the plant. Dried tubers contain 0.19% of poisonous alkaloids and 1.14% of yellow colouring matter. One plant develops only one tuber which is spherical, irregularly branched, covered with roots. It is an important medicinal plant and there is possibility of utilising the tubers for the production of industrial starch.

Thevetia peruviana:

Thevetia peruviana belongs to family Apocynaceae and commonly called as yellow olender, Mar-pivla kanher. It is a large evergreen shrub 4 to 6 m tall, native of tropical America and West Indies. In India, it is cultivated throughout the plains and grown in gardens. Leaves are 10-15 cm long, linear, acute, flower bright yellow in terminal cymes. Fruit is drupe triangular fleshy and 2-4 seeded. The wood is brownish grey, soft and hard. The plant is propagated through the seed and cutting and also through tissue culture (Anajani, 1992).

It is reported to be poisonous to fish. A tincture of the bark is bitter, cathartic and emetic. All parts of this plant produced latex, which is highly poisonous. Leaves are used in headache (Kharkonger and Joseph, 1990). Leaf paste used on skin diseases (Rajendra and Mehrotra, 1996). The active principles in yellow olender are the cardiac glycosides. The glycosides are present in different parts of the plant. Kerneis contains nearly seven times as much glycosides as the
leaves, stem and flowers. Leaves are purgative in small doses, smoked narcotic and root paste used against tumours. The plant is a potential source of the cardiac glycosides and is considered to be a promising drug for congestive heart failure (Arora et al 1967).

*Vigna trilobata* :

*Vigna trilobata* family Papilionaceae is a wild relative of the cultivated Mungbean occurring throughout plains of India. It is an annual or perennial plant and is commonly occurring on open grasslands and in fields as a weed. It is also found in Himalayas, ascending to an altitude of 2,100 m in the North-west.

The plant is procumbent annual herb; branches trailing, slender, a few hairy; leaves trifoliate, used as a green fodder for cattle. Flowers are closed, deltoid heads and yellow in colour; seed coat brown or black.

The plant is raised through seed between June and October. The pulse though highly nutritious and much valued in certain localities, is generally eaten only by the poor. The plant is valued as green fodder, which contains proteins-11.4 %; fats-1.3 %; fibres-22.1 %; ash-13.4 %; calcium-2.69 % and phosphorus 0.40 %. *V. trilobata* is a good soil binder species and can be used for green manuring. Leaves sedative, used in cataplasm for weak eyes and the plant used as remedy over irregular fever. Pharmacognostical study is a prerequisite to identify the psychoactive nature of the plant.

*Fish as test system for screening of psychoactive plants* :

The Indian major carps *Labeo rohita*, *Catla catla*, *Cirrhina mrigala* have been widely used in aquaculture practices throughout India and are selected as experimental material in research laboratories. Though many exotic carps are introduced in India for cultural practices, a common carp *Cyprinus carpio* is well established in India and now a days used in polyculture practices along with Indian major carps. The pond culture practices involving the Indian major carp play an important role in countries, economy and development. For the selection of a standard fish to experimental purpose has laid down following criteria:
1. Must have a constant response when tested under similar condition.
2. Available in large quantity.
3. Easy handling.
4. Easy to transport.
5. Available throughout the year.

Under the Indian conditions, no species has been identified as a standard test fish for diverse reasons. Firstly, the temperature and climatic conditions on the Indian subcontinent vary from tropical to temperate. Secondly, no standard protocol has been evolved for conducting aquatic tests. Thirdly, different and divergent species of fish such as *Catla catla, Labeo rohita, Cirrhus mrigala*, and *Channa punctatus* etc. have been employed by different workers (Singh and Munshi 1980; Murthy 1986) making the tests results hardly comparable. In most of this studies, the choice of particular test species is the most common and occurring locally and is commercially important. Fourthly, the species selected for work among the size group available in nature. Apart from the requirements listed above for choosing a standard test fish, the species that can be adopted as a standard test fish will be selected. *Labeo rohita* is highly sensitive fish, commercially important, easily available throughout the year. Now a days fish system is selected for carrying different tests e.g. pollution, toxicity and psychoactivity. In present studies fresh water fish *Labeo rohita* is selected for undertaking psychoactivity of some potential plants.

The scales are external to the body of fish, they are constantly come in contact with water. Scales are very good bioindicators of the state of effect on water bodies. In teleost fish, the skin is vulnerable to polluted water and melanoepores on scales respond immediately to the pollutant. Water is an essential solvent of the plant cell sap. Naturally water extract of the plant parts will contain those constituents or principles for which plant is known for its medicinal property.
There is a report of a potential psychoactive drug plant (Schultes, 1984; Shukla and Jain, 1997). Fish system L. rohitua is selected as the most suitable system for present investigation (Plate - 16).

**LC 50 Value:**

The median lethal concentration or LC 50 is the most often used measure of short term toxicity. This the concentration that kills 50% of the test population in a given time is variously termed as TLM, LD 50, LC 50 etc. This test must be performed for the study of the effect of plant extract on fishes.

**AChE Activity:**

Acetylcholine, a enzyme involved in terminating the action of the neurotransmitter. Many processes intervene between the stressful stimulus and the subsequent behavioural and other responses. A variety of neurotransmitters both in central and autonomic nervous system are involved in process. Acetylcholine (ACh) is the important neurotransmitter involved in these process (Sembulingam et al, 1999). Transmission of nerve impulse across the synaptic cleft is effected by the release of a chemical compound called neurotransmitter. When an impulse arrives at a nerve terminal, it triggers the secretion of a neurotransmitter that travels across the synaptic cleft and stimulates the next cell, there by carrying the impulse forward. One of the primary neurotransmitters is acetylcholine stored in synaptic vesicles in the nerve terminal. Apart from the synapses of the sympathetic nervous system in vertebrates, acetylcholine is also secreted at the myoneural junctions and in the autonomic ganglia. It is essential for the organism to quickly destroy the chemical neurotransmitter in order to avoid prolonged depolarization of the excitable membrane due to acetylcholine and resultant stimulation. This is achieved by a group of enzymes known as cholinesterases. Essential cholinesterases are bring about hydrolysis of various choline derivatives (Lehninger, 1975). Many psychotropic drugs and convulsant agents are reported to affect the brain cholinesterase activity and the acetylcholine levels in brain (Datta and Pandey, 1967).