Abstract: An ethnobotanical survey of medicinal uses of plants of District Dausa (Rajasthan), India was undertaken by means of structured oral questionnaire during January 2018 to December 2019. The aim of the survey was to collect information about these valuable plants used for the treatment of various ailments and other uses by the indigenous people and to identify the traditional healers among different communities in rural areas of the region. Interviews were conducted on a regular basis of local people, who had knowledge on the ethnobotanical uses of various parts of these plants. Many plant species were reported to be in use among the rural people of different communities in the study area. The survey provided a veritable source of information related to ethnomedicinal uses of plants in the area studied.

Keywords: Conservation, Dausa, Ethnobotany, Traditional knowledge.

INTRODUCTION
Bio resources and humans have intimate relationship since past and depend upon each other for existence. Now days, greater emphasis is being laid on the traditional knowledge regarding application of bio resources in the indigenous healing practices by tribal / ethnic people since ancient time (Prakash, 2017). Most of world's rural population depends on traditional / indigenous drugs for their primary health care. The percentage of the population using traditional medicines for primary health care in developing countries is 60-90% and in developed countries 23-80% (Borah and Prasad, 2017).

India has one of the oldest, richest and most diverse cultural traditions associated with the use of medicinal plants in the form of traditional system of medicine. However, no proper documentation of such remedies exists. Recently, many developing countries have ventured into studies of traditional medicines, devoting significant attention to migrant communities in industrialized countries.

Human beings have been using plants since long. Research workers are bringing to light additional information on the relationship between plants and man. Man's vital interest in plants primarily as a source of food, shelter and clothing dates back to the very origin of human civilization. The number of species about which we have a reasonably detailed knowledge is probably less than one percent. In Indian subcontinent, the plants have played crucial role in the socio-cultural development of human species concurrently in different parts of human civilization and exerted greater impact because of varied climatic conditions and diversified socio-economic conditions (Pandey, 2019).
The World Health Organization (WHO) defines this traditional or folk medicine as 'the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness' (Prakash and Verma, 2021).

Ethnobotany is the study which deals by means of the direct time-honored and natural association among human beings and plants (Trivedi, 2002). Medicoethnobotany acts as a bridge between botany and tribal knowledge regarding medicinal aspects of plants. The use of plants as medicine to cure or prevent illness and other ethnobotanical aspects of plants to lubricate the wheels of social interaction at the interpersonal and group level is a behavior that predates civilization, and extending to every society irrespective of its level of development and sophistication.

Ethnobotanical information throughout the world is available in the literature (Abbas et al., 1992; Alam, 1992; Medley, 1993; Manandhar, 1995). However, studies related to ethnobotany in India have received due attention in the last two or three decades (Jain, 1975; Chakravarti, 1975; Rao, 1981; Gangwar and Ramakrishnan, 1990; Dobriyal et al., 1996; Hedge et al., 1996; Singh, 1999a). Moreover, sporadic ethnobotanical information is available from Rajasthan (Nathawat and Despande, 1960; Chandra, 1978; Shrivastava, 1977; Singh, 1983; Shekhawat and Anand, 1984; Singh, 1999b). There has been a wide concern to collect more and more ethnobotanical information, especially related with ethnomedicine (Jain, 1975, 1981, 1995; Binu et al., 1992; Trivedi, 2002; Choudhary and Thakar, 2004).

The knowledge, which is mostly undocumented, is transmitted orally from generation to generation thereby restricted to a particular family, tribe, or section of society, which has led them to the verge of extinction. Since due to various reasons, both natural resources and tribal culture are depleting at an alarming rate, therefore, there is an urgent need to explore and document this unique and indigenous knowledge before it is lost forever (Prakash and Yadav, 2020). Rajasthan is very rich in floristic diversity as well as in ancient folk literature which may be tapped for information since all systems of medicines have their roots, in one way or the other in folk medicines and household remedies. The present investigation related with the ethnobotanical importance of plants growing in Dausa district of Rajasthan has drawn the attention of authors in the light of studies already carried out on the flora of this district. This ethnobotanical survey was undertaken during January 2018 to December 2019.

MATERIALS AND METHODS
Periodic field surveys for ethnobotanical exploration were undertaken in which more than 100 persons were interviewed. Informants were requested to collect specimens of the plants they knew or to show the plant species on site. These informants were traditional healers themselves or had a tradition of healing in their families and had at least some knowledge of the medicinal use of the plants. The information was collected by conducting personal interviews with different ethnic groups, villages and traditional healers. Apart from ethnomedicinal plants information was also gathered about other ethnobotanical aspects of plants pertaining to their use in food, agriculture, fodder, fencing, musical instruments ceremonies etc. The species mentioned by the informants were taxonomically identified. The ethnobotanical data were collected through questionnaire, interviews and discussions among the traditional practitioners in their local language. Questionnaire allowed descriptive responses, such as part of the plant used, medicinal use, detailed information about the mode of preparation and form of usage such as fresh or dried, as ingredients mixed with other plants or unmixed. The information gathered was confirmed by old traditional practitioners in different groups of village people of the area of investigation.

During the field survey, the plants have been collected from the natural habitats in their flowering and fruiting stages as far as possible. Collected voucher specimens were pressed, dried, mounted, prepared and preserved for further response. Plants with their correct
nomenclature were arranged alphabetically by their scientific names, vernacular name and ethnobotanical uses. The plant specimens were identified using relevant floras and other means. The identification was then verified and confirmed at Herbarium, Department of Botany, University of Rajasthan, Jaipur (RUBL).

RESULTS AND DISCUSSION
During present investigation, authors observed that the number of plants and their species already reported have either become endangered or they are being exploited in an unscientific manner. Some plants used for the purpose of medicinal and veterinary diseases in the district are documented in table 1. Besides the medicinal use, plants are also being utilized for various other purposes like food, famine food, shelter, fodder, oil (edible and non-edible), gums, resins, timber, agricultural equipment, fencing etc.

Table 1: Ethnomedicinal plants used by indigenous people of Dausa District.

| S. No. | Name of the plant | Parts used | Ailment | Mode | Preparation |
|--------|------------------|------------|---------|------|-------------|
| 1.     | *Abelmoschus* esculentus | Root along with root bark | Abdominal pain and dysentery | Extract, orally | Crushed & strained |
| 2.     | *Abrus precatorius* | Leaves and seeds | Heart burn, plough wounds in neck of cattle, urinary tract infection, constipation | Rubbed locally, seed orally | Paste |
| 3.     | *Acacia senegal* | Exudate from plant | Facilitates difficult child birth | Orally | Katha mixed with milk, local liquor |
| 4.     | *Acacia farnesiana* | Leaf | Eye inflammation | Orally, poultice over eyes | Crushed into paste |
| 5.     | *Achyranthus aspera* | Whole plant | Cough, cold and gangrene | One cake eaten orally locally | Cakes of ash and maize flour sandwiched in 2 Butea leaves |
| 6.     | *Adiantum caudatum* | Whole plant | Cuts and migraine | As ointment | Crushed into paste |
| 7.     | *Ailanthus excelsa* | Root and stem bark | Fever, cough and cold | Orally, vapors inhaled | Decoction, drug boiled in water |
| 8.     | *Aloe barbadensis* | Leaf | Guinea worms | Locally applied | As vegetable |
| 9.     | *Amaranthus spinosus* | Leaf | Constipation, loss of appetite | Eaten | As vegetable |
| 10.    | *Argemone* spp. | Root and leaf | Eye inflammation, scorpion stings | Dropped in eye, locally applied | Juice |
| 11.    | *Curculius hirsutus* | Leaf | Cut, sores, wound, and cure blindness | Dripped over eyes, eaten | Juice, vegetable |
| 12.    | *Crataeva nurvala* | Leaf stem bark | Guinea worm, cracked skin | Hot ones tied locally | Boiled, paste |
| 13.    | *Cucurbita maxima* | Fruit stalk | Relieves Scorpion stings | Locally | Sap by rubbing in stone |
| 14.    | *Cuscuta reflexa* | Stem | Jaundice treatment | Orally | Decoction |
| 15.    | *Cyperus rotundus* | Stem | Snake bite | Chewed | Chewed |
| 16.    | *Datura* | Latex and leaf | Guinea worm | Smeared locally | Paste |
| 17.    | *Dendrothoe falcate* | Leaf | Dropsy | Bath taken | Handful of crushed leaves |
| 18.    | *Derris elliptica* | Oil | Sores, wounds, removes lice and ticks in hair | Locally decoction | Crushed or as |
| 19.    | *Euphorbia birta* | Whole plant | Ring worms | Locally | Paste |
Food and Crops

The plant species grown as crops in the district by tribals of the district are: *Brassica campestris*, *Capsicum annuum*, *Cicer arietenum*, *Cucurbita maxima*, *Cyamopsis tetragonoloba*, *Eruca sativa*, *Hordeum vulgare*, *Luffa acutangula*, *Pennisetum americanum*, *Sesamum indicum*, *Trigonala foenum-graecum*, *Triticum aestivum*, *Vigna aconitifolia* and *Zea mays*. Some wild plants used as source of food by tribals are: *Acacia nilotica*, *Aegle marmelos*, *Albizia lebbeck*, *Aloe barbadensis*, *Capparis decidua*, *Prosopis cineraria* and *Zizyphus spp.*

Famine Food

Plant species utilized as famine food in the area are: *Acacia nilotica*, *Aegle marmelos*, *Albizia lebbeck*, *Aloe barbadensis*, *Capparis decidua*, *Prosopis cineraria* and *Zizyphus spp.*

Fodder

Many plant species are utilized as fodder for cattle viz. cow, horses, buffalo, camel, goat, sheep and donkey that are few common animals which are kept by tribal and non-tribal people of the area. The major fodder sources are annual and perennial grasses, sedges or herbs, shrubs and trees.

Field fencing

Though some plants and trees are not primarily for field fences but certain trees and shrubs are allowed to grow within or in vicinity of the fences. Their branches are used in forming dense dead barricades in the form of fencings. Some of their properties like spiny or bushy and sand binding nature are just like the plants grown primarily for fencing. Common plant species used for field fencing by the tribes of the area are: *Ailanthus excelsa*, *Leptadenia pyrotechnica*, *Acacia nilotica*.

Edible oil and nonedible oil

Plant species used as source of edible oil are: *Brassica campestris*, *Eruca sativa*, *Sesamum indicum*, *Brassica juncea*, *Brassica nigra*. Plant species used as source of nonedible oil by the tribals are: *Azadirachta indica*, *Brassica juncea*, *Chenopodium album*.

Gums and Resins

*Musa paradisiaca*, *Acacia nilotica*, *Acacia senegal*, *Acacia catechu*, *Azadirachta indica*, *Ficus benghalensis*, *Ficus racemosa*, *Prosopis cineraria* are main plant species used for source
of gums and resins by the tribals of the area.

**Tannins**
Acacia catechu, Anogeissus pendula, Acacia nilotica, Acacia senegal, are main plant species used for tannins.

**Detergents**
Plant species utilized as source of detergents by the tribal women in the area are: *Acacia nilotica, Acacia senegal* and *Azadirachta indica*.

**Fibre plants**
The plant fibres have important role to fulfill the various human needs and are the part and parcel of their basic requirements. The tribals mainly use *Saccharum bengalense* and *Crotalaria juncea* for this purpose.

**Timber wood**
*Acacia nilotica indica, Anogeissus pendula, Capparis decidua, Dalbergia sissoo, Dendrocalamus strictus, Holoptelea integrifolia, Ficus spp., Prosopis cineraria, Leptadenia pyrotechnica*, are common plant species used as timber.

**Fuel wood**
*Capparis decidua, Cajanus cajan, Azadirachta indica, Anogeissus pendula, Ipomea fistulosa, Pennisetum typhoedium, Ailanthus excelsa, Acacia nilotica, Prosopis juliflora, Prosopis cineraria, Salvadoria oleoides, and Zizyphus mauritiana* are used for fuel.

**Shelter**
Plants used in making huts and shelter are: *Acacia nilotica, Anogeissus pendula, Calotropis procera, Pennisetum americanum, Prosopis cineraria, Prosopis juliflora, Saccharum bengalense, Cajanus cajan, Saccharum spontaneum, and Zizyphus nummularia*.

**Agricultural equipments**
*Acacia nilotica, Anogeissus pendula, Prosopis cineraria*, are used for making agricultural equipments.

**Ethnomusicology**
Musical instruments like Bansuri, Chang, Dholak, Dhol, Nagada, Poongi, Ravanhattha, Ghera, Duff, Harmonium, Khartal, Sarangi are made from plant species like *Acacia nilotica indica, Ailanthus excelsa, Argemone mexicana, Azadirachta indica, Dalbergia sissoo, Dendrocalamus strictus, Mangifera indica*.

**Intoxicants and Masticatories**
Many species of Angiospermic plants are used as intoxicants and masticatories which are used by the indigenous people of the district. Plants used as intoxicants and masticatories are: *Acacia nilotica, Balanites aegyptiaca, Cordia gharaf, Datura innoxia, Datura metel, Calotropis procera, Nicotiana tabacum, Tamarindus indica and Zizyphus nummularia*.

**Ceremonies**
The various plant found to be significant in ceremonies in tribal lives are: *Acacia nilotica, Hordeum vulgare, Lawsonia inermis, Oryza sativa, Pennisetum americanum, Sesamum indicum, Cicer arietinum, Brassica juncea, Vigna mungo, Vigna radiata, Mangifera indica, Ficus religiosa, Cyanodon dactylanthus, Saccharum spontaneum, Acacia catechu, Piper betal, Musa paradisiaca, Saccharum officinales and Ziziphus nummularia*.

It is apparent from the foregoing account that rural inhabitants have a good knowledge of medicinal uses of plants available in their area. The rural people exploit plants for the treatment of a wide variety of ailments whether major or minor like fever, asthma, cough, cold, headache, rheumatism, stomachache, skin diseases etc. since ancient times.

Many plants are left unexploited in the forests and in some cases a large number of banned species are extracted. This thoughtless and unplanned extraction is resulting into extinction of many important and valuable species. Emphasis has to be laid on preparing a data base using latest trends and techniques on underutilized plants of economical and industrial utility for their optimum exploitation on a sustained basis. The invaluable role of the ethnic people in the conservation of the plant genetic resource now begins to be recognized. However, the economic benefits from the utilization of these materials seldom accrue to them. The ethnic people have provided several 'miracle plants' of immense food and medicinal value to modern civilization. The primitive
cultivars and wild relatives of crop plants preserved by the indigenous ethnic people may hold the ‘genetic key’ of many valuable ‘miracle crops’ of the future. Moreover, there is a need to work out the detailed research on the plants of medicinal values including their biochemical properties.

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