

Practice of Medicinal Plants for Domestic Animals in Mahendragiri, Gajapati District of Odisha

Pabitra Mohan Sahu¹, Dr. Rasmita Padhy²

¹Research Scholar (Botany), GIET University, Gunupur, Rayagada, Odisha, India

Email: sahupabitra@gmail.com

Mob-7978965447

²Lecturer in Botany, P.G. Department of Botany and Biotechnology, Khallikote Unitary University, Berhampur, Odisha, India

Corresponding author Email: rashmitapadhy258@gmail.com

Mob – 09040692724

Abstract: *The medicinal plants have occupied a distinct place in human life. They have been the backbone of traditional herbal medicines and have been extensively studied because of their pharmacological importance. In our survey we have studied about the ethnomedicinal use of local plants for their domestic animals used by the people of Mahendragiri, Gajapati district, Odisha. We have collected 15 plants for our report. From this ethnobotanical survey we tabulated these identified collected plants with their botanical name, family name, local name, habit, monocot/ dicot and the plant parts which used to treat diseases of domestic animals. A total of 15 species belonging to 13 families like Malvaceae, Amaranthaceae, Amaryllidaceae, Papaveraceae, Moraceae, Meliaceae, Poaceae, Fabaceae, Boraginaceae, Cucurbitaceae, Solanaceae, Euphorbiaceae, Loganiaceae, are reported. Family Fabaceae are the most commonly used plant. Out of 15 plants, highest number of plants belongs to herb (5 species), and shrubs (5 species) followed by trees (4 species), climbers (1 species). About 13 species were dicots, remaining 2 were monocots. Hence dicots are more prominent. It was confirmed by the locals that various plant parts are used to treat animals like cow, buffalo, sheep, goats, cattle. Comparison of the plant parts used as a medicinal source indicates that the leaves are the most used part, followed by seeds, bark, root and bulb. The tribal people have a great belief in Ayurveda. Hence, they go for the medicines prepared from the locally available plants for any type of medical issues. Obviously due to their poor financial condition also they prefer to go for homemade herbal remedies. This system of medicine is found to be refined and included in Ayurveda but it has its own indigenous concepts based on practical experience during disease treatment. The World Health Organization (2002) currently encourages, recommends and promotes traditional herbal medicines in national health care programs.*

Keywords: Ethnobotany, medicinal herbs, Ayurveda, live stock, Ethnoveterinary

1. Introduction

Medicinal plants are those plants whose body parts or whole body synthesizes and stores the substances that can be used for therapeutic purposes i.e. treatment of diseases and providing alternative means of drug use. This applies to both humans as well as livestock. The major sources of collection for these plants are forests. Odisha is endowed with rich forest resources having varieties of flora and fauna. According to forest survey of India, The total forest coverage of odisha is 55,472km² which is 33% of the total 155,707 km² land area. One of the main reasons behind this is the eastern Ghats which runs through the state. The estimated total number of medicinal plant species in the state is around 1700 species as per the data provided by the State medicinal plant board, Odisha. These tribes have practitioners who pass their knowledge from generation to generation as tradition. Relationship between plants and animals has been continuing since the prehistoric times. This relationship is a mutual one, where plants provide food and medicinal parts and in exchange the animals help in pollination and seed dispersal. But as humans began to farm animals for food, the genetic memory of those animals began to dissipate. They were no longer able to use plants for themselves. So humans of that era began to use various plants to treat various ailments of the domestic animals. These practices constitute the ethno veterinary medicinal systems developed across many regions in the world. Ethnoveterinary medicine (EVM) considers that traditional

practices of veterinary medicine are legitimate and seeks to validate them (Köhler-Rollefson and Bräunig, 1998). There are many ancient ethno veterinary medicine texts available. Mrigayurveda is one of the oldest ethnoveterinary texts available to us. The Chinese and The Tibetans also have their systems to treat animal diseases. The availability of the modern medicine have drastically decreased the use of such systems in developed regions. Tribal people in many parts of India are still using traditional ethnoveterinary practices.

This paper explores the medicinal plants used by domestic animals found at Mahendragiri area of Gajapati district. All the plants are identified according to Bentham and Hooker 's classification system. A specimen of each species was collected (or) photographed. Whole plants along with their roots were collected. The information about the diseases for which the plants were used and plant parts responsible for treating them was collected. This survey was conducted to know the medicinal plants used for domestic animals.

2. Material and Methods

Study Area

Gajapati is one of the 30 districts of Odisha, which is covered by hills, mountains and undulated topography inhabited by Saura tribe. Gajapati district constitutes a part of the Eastern Ghats of India. Gajapati is surrounded by Andhra Pradesh towards south, Ganjam district on the east, Rayagada district on the west, Ganjam and Phulbani districts

Volume 12 Issue 6, June 2023

www.ijsr.net

Licensed Under Creative Commons Attribution CC BY

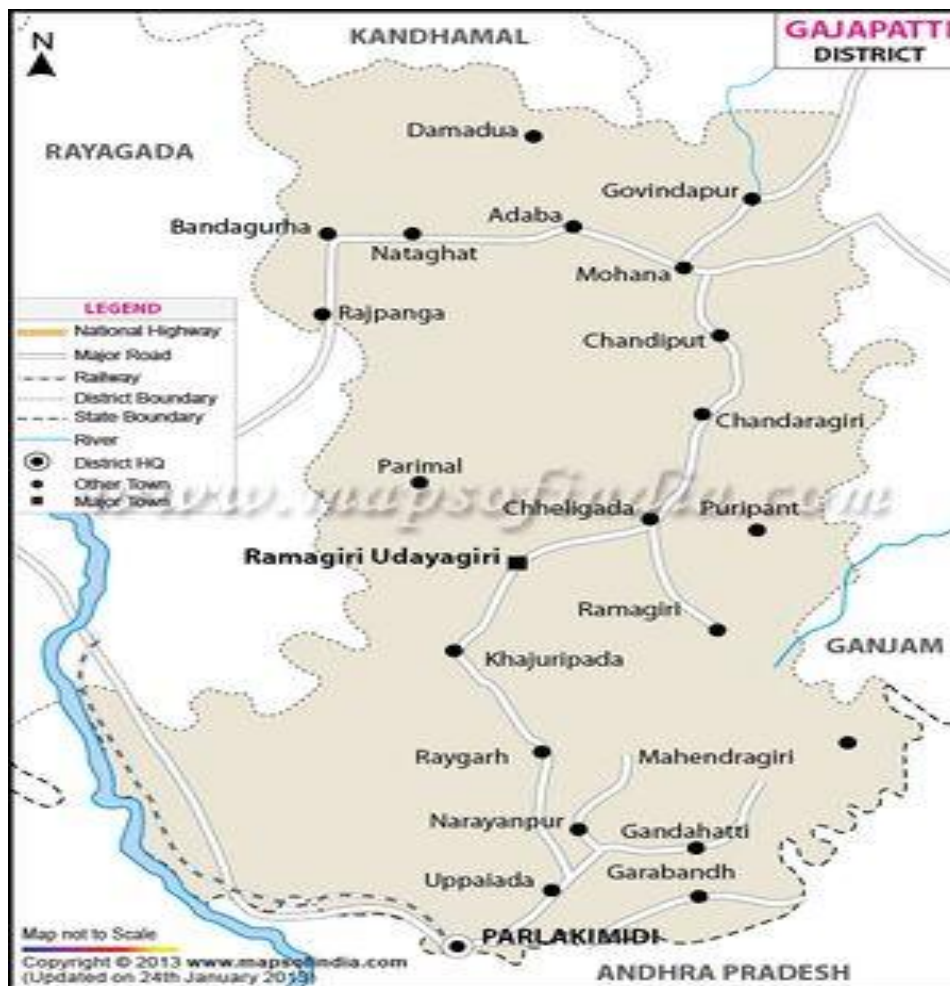
on the north. Vansadhara and Mahendratnaya are the two major rivers of this district. The total forest area of Gajapati district is 2302sqkm, and the annual rainfall of the district is 1403 mm. Major part of the area belongs to hilly topography. Mahendragiri hill and its surrounding areas are recognized as a biodiversity hot spot due to numerous medicinal plants and other species that are found here. A heaven for medicinal plants, Mahendragiri Hills, which is part of the Eastern Ghats, is home to over 600 flowering plants. The faunal diversity of the region is huge and particularly known for being a herpetofaunal hotspot. The soil type is loamy but in higher elevation the soil is rocky with small to big boulders. The temperature ranges from 15° C during winter and about 35° C- 40°

Sampling Techniques and Data Collection:

Field studies were conducted to collect the primary data and information on medicinal plants found in the study site. During the field work, we followed the method adopted by Jain (1971,1981 and 1991), Ethnobotanical information was collected from tribal people and local Vaidyas. In this study, questionnaires were given to these people to collect information on Odia names of the plants, plant parts used for medicinal preparation and method of preparation. Data was collected by giving special emphasis on medicinal plants. Tribal families having a history of rearing various domestic animals were identified. They were surveyed on the use of medicinal plants for ailments of domestic animals such as cattle, goats and sheep etc. Information about Odia names of the plants, plant parts used for medicinal preparation and domestic animal/s on which it is used was documented. During the survey, depending on the convenience of the practitioner, guided field work method (Martin, 1995; Mandu, 1995) was followed. A walk through the field where the medicinal plants were found and the houses where the medicine is prepared. This was done for confirmation of the data collected earlier. The data was recorded in the field note book and later it was analysed properly along with the experts. Various Phytochemicals released from different parts of plants are documented using Indian Medicinal Plants [C .P. Khare (Ed.)] .

Identification & Preparation of Voucher Specimen

Plants were collected after identified by traditional healers and tribals. The botanical names and descriptions of the plants are collected from The flora of Orissa, vol.1-4 (Saxena HO , Brahmam M ,1996) .All medicinal plants recorded for the treatment cattle were photographed in the field.They use numerous plant parts such as stem, roots, fruit, seeds, flower, bulb, rhizome, bark to prepare different forms like paste, oil, powder, pulp, decoction, juice, exudates from plant parts which will be used for curing diseases. Although the locals have a tremendous repository of knowledge within themselves by sheer experience. Much of the ethnobotanical knowledge remains in the dark and slowly going extinct day by day. Individuals and workers should step to save this incredible treasure for mankind. This paper is one of those small steps that we have to take thousand times. Another important view is that rapid degradation of forest is has impacted the lives of these tribal people by stripping of their homeland form them. Due to this situation it has become very difficult for them to lead their traditional way of life.it has been forcing them, particularly the younger generation to discard their traditional practices and adopt the more modern practices. To solve this problem, a number of herbal medicine marketplaces with public-private partnerships. They should also create awareness about online marketplaces / e-commerce ecosystem which will give traditional medicine a worldwide customers. This will create jobs for younger generation. Although there are many legal constructs to safeguard flora and fauna in our country but they are often overlooked without any legal repercussions. A system to enforce should be developed by the concerned government. Just like the medicines used for human ailments these folk traditions have many formulations for treating various conditions in cattle and other domestic animals. These traditional practices are being used by many veterinary doctors in the areas of low financial resources in non-severe ailments. Thus, the study shows the value of a great number of plants used in traditional medicines, which would be of considerable importance in the development of new drugs.











3. Tabulation and Data Analysis







Table-1 contains the information about the medicinal plants used for treatment of domestic animals. It has information about botanical names, field photographs, local name, family name, habit, monocot or dicot, plant parts used for

medicine, ailments for which the plant is used and type of animal on which it is used.

This data was further analysed. The analysed data was expressed in the form of pie-charts and bar diagrams.

TABULATION - 01									
SL NO	Botanical Name	Image	Local Name	Family Name	Habit	M/D	Used Part	Diseases	Animal Treated
1	<i>Abutilon indicum</i> (L.)		ଘେଡ଼ିଘେଡ଼ି	Malvaceae	Shrub	D	Leaves	Dysentery	Adult cow or young calf, sheep and goat
2	<i>Achyranthus aspera</i> L.		ଅଧନାମଂ	Amaranthaceae	Herb	D	root	Thelaziasis	Cattle and equine

3	<i>Allium sepa</i> L.		ପିଆଜ	Amaryllidaceae	Herb	M	Bulbil	Gastrointestinal disorder, Cold and fever	Cows
4	<i>Argemone Mexicana</i> L.		ଓଡ଼ିଶାମାରିଚ	Papaveraceae	Herb	D	leaf	sore	Camel , equine and cattle
5	<i>Artocarpus heterophyllus</i> Lam.		ପଣସ	Moraceae	Tree	D	Leaves and tender shoot tips	infertility	Cow
6	<i>Azadirachta indica</i> A.juss		ନିମ	Meliaceae	Tree	D	Leaves	Retained placenta	Cow or buffalos
7	<i>Bambusa vulgaris</i> Schrad.ex.J.c.Wendl		ବାଉଁଶ	poaceae	Semi-shrub	M	Leaf blades	Retention of placenta , Increase of milk production	Cow
8	<i>Cajanus cajan</i> (L.) Huth		କାନ୍ଥୁଲ / ହରଡ଼	Fabaceae	Shrub	D	Seed	Dysentery	Cow, sheep and goats

9	<i>Corolia dichotoma</i> G. Frost		ଧନିଆ	Boraginaceae	Tree	D	Stem bark	Infertility	Cow
10	<i>Cucurbita maxima</i> Duchesne		ବୋଇତାଳୁ	Cucurbitaceae	Climber	D	Tender leaves	Early stage gastrointestinal disorder	Cow, sheep and goats
11	<i>Datura metel</i> L.		ଦୁବୁରା	Solanaceae	Shrub	D	Leaves	For black-quarter disease	Cattle
12	<i>Ricinus communis</i> L.		ଜଡ଼ା	Euphorbiaceae	Shrub	D	Seed	Flatulence	Cow, sheep and goats
13	<i>Strychnos nux-vomica</i>		କୋଟିଲି	Loganiaceae	Tree	D	Stem bark	Maggot wound	All types of livestock
14	<i>Tephrosia purpurea</i> (L.) Pers		ବନକୋଳଅ	Fabaceae	Herb	D	leaves	Rodent bite	cow
15	<i>Trigonella foenum</i> L.		ମେଞ୍ଚ	Fabaceae	Herb	D	Seeds	Flatulence	Cow, sheeps and goats

4. Results

Agriculture and animal husbandry are the two most important sectors of Mahendragiri of Gajapati district.

Majority of the residents are tribal folks, their poor financial condition does not allow them to opt for veterinary medicines. Hence they strongly believe and rely upon their ancient knowledge of traditional medicine. The result of this

ethnobotanical survey are presented in Table - 1. For each species following information were provided: botanical name, family name, local name, habit, monocot/dicot, plant parts used to treat diseases of domestic animals. A total of 15 species belonging to 13 families like Malvaceae, Amaranthaceae, Amaryllidaceae, Papaveraceae, Moraceae, Meliaceae, Poaceae, Fabaceae, Boraginaceae, Cucurbitaceae, Solanaceae, Euphorbiaceae, Loganiaceae, are reported. Family Fabaceae are the most commonly used plant. Out of 15 plants recorded from study area, highest number of plants belongs to herb (5 species), and shrubs (5 species) followed by trees (4 species), climbers (1 species). About 13 species were dicot, remaining 2 were monocot. Hence dicots are more prevalent. It was confirmed by the locals that various plant parts are used to treat animals like cow, buffalo, sheep, goats, cattle. Comparison of the plant parts used as a medicinal source indicates that the leaves are

the most used part, followed by seeds, bark, root and bulb. The information collected during the surveys were arranged into a tabular form with the following columns:

- 1) The binomial botanical name of the plant species according to ICBN.
- 2) A photograph taken in the field.
- 3) Local name of the plant obtained from surveys
- 4) Family to which the plant belongs.
- 5) Habit of the plant
- 6) Information about whether the plant is a monocot(M) or dicot(D).
- 7) Parts of the plant used to for medicine preparation and information about the type of dosage
- 8) Corresponding ailments for which the prepared medicines were used.
- 9) Type of animals treated by the plant

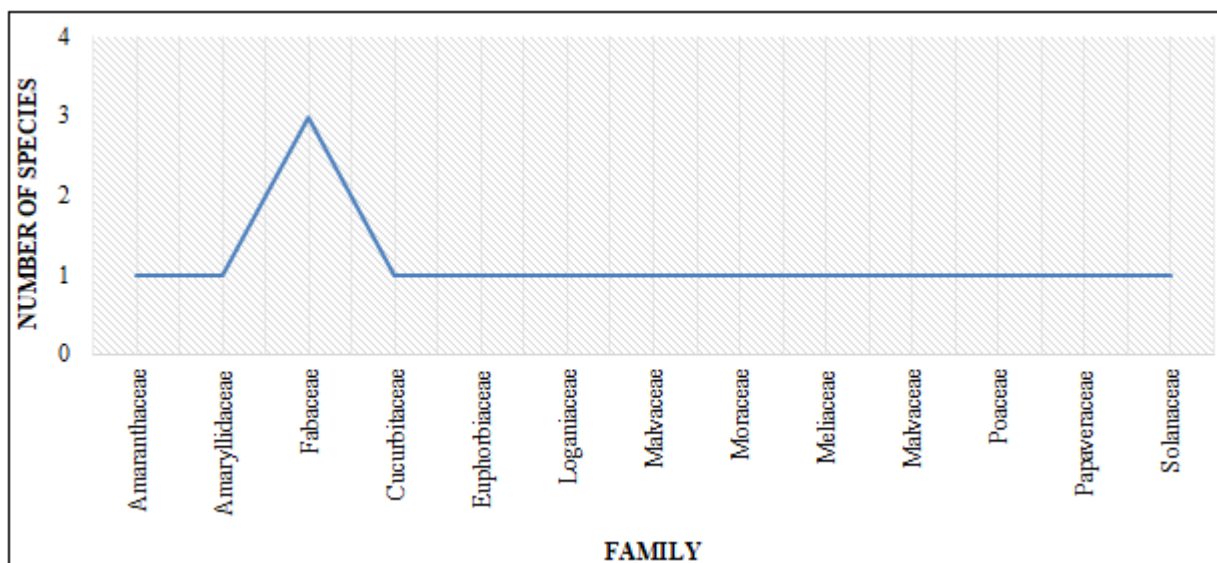


Figure 1: Graph showing Distribution of Plant Families

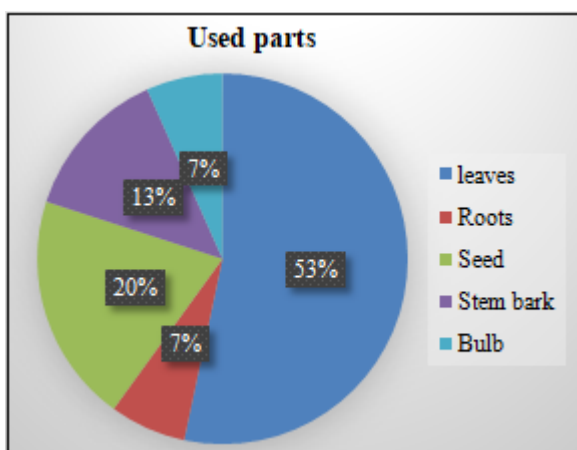


Figure 2: Parts of the Plant Used for Medicine Preparation

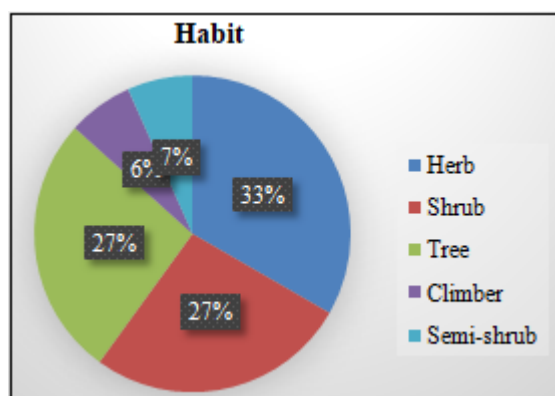


Figure 3: Distribution of Habit in the Collection

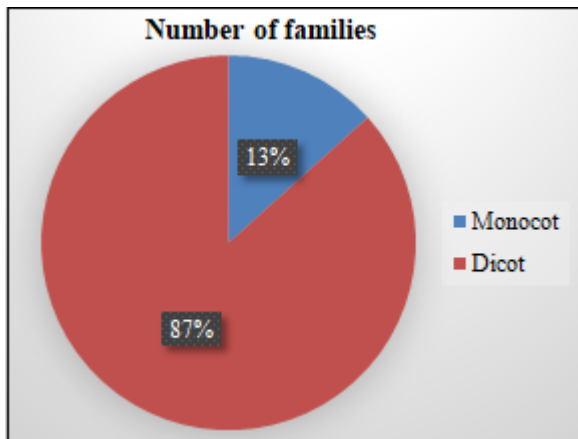


Figure 4: Distribution of Monocots and Dicots in the Collection

5. Discussion

India has one of the oldest continuing folk traditions among its people which were passed down from many generations. With the advent of modern medicine while more and more people backed down from using those folk traditions but the rural and tribal population are still clinging to their traditions. They use these formulations like any other medication to cure their family members and domestic animals as well. Although use of traditional folk medicines can be linked to their financial conditions which is often not very sound. As per Champion and Seth (1968), the forest of Mahendragiri falls mainly under (a) Tropical moist deciduous and (b) Tropical dry deciduous type. In India too many scholars have done remarkable work on ethno-botany. After a thorough review of a large number of studies, S.K. Jain (1963) is found to be categorized as the front ranking worker on ethno-botany in India. He has worked on different aspects of ethnobotany, covering Central and North eastern India. In his ethno-botanical accounts he has described various uses of plants for food, medicine, wooden instruments and home appliances. His studies also include the folklore of plants. Jain wrote 2 prominent books on Indian ethnobotany. They are "Manual of ethnobotany" and "Dictionary of Indian folk medicine". Jain has also made some collaborative studies. Jain and Saklani (1992) in cross-cultural ethno-botanical study of Northeast India have shown the similarity and dissimilarity in ethno-botanical use of 28 plants among the different ethnic societies of northeast India. Jain and others (1995) have dealt with 41 plants which are used by the Tribe of India and Amazonia for similar diseases. The studies on disease of tribal have been concentrated in Anemia, malaria, deficiency of micronutrient, sickle cell disorder and many other communicable and non communicable diseases. ICMR bulletin (2003) has reported various types of disease of different Tribe residing in Odisha. For the domestic animals we collected 15 species belonging to 13 families. In the study "Plants used in traditional healthcare of livestock: A case study from Kendrapara district, Odisha, India" (Panda T. *et al.*) they had collected 44 plant species representing to 43 genera and belonging to 33 families have been enumerated for ethnoveterinary practices as remedy for 23 types of animal ailments. In the study "Ethnoveterinary Practices and use of herbal medicines for treatment of skin diseases in cattle : A study in Polsara Block, Ganjam District, Odisha, India"

(Mishra D. *et al.*), they had collected 31 plants belonging to 24 families which were used to treat various ailments of domestic animals. Ethnoveterinary practices for cattle diseases in Ganjam district of (P.K.Das 2011)

6. Conclusion

This survey of traditional medicines for treating tribals and their livestock. As this district belongs to remote area of Odisha, there are very few researchers worked upon it. Hence, this paper is to give limelight to the Vaidya's and PashuVaidya's (traditional herbs) of Gajapati district for the study area we selected the area Mahendragiri. India is a land of faith and belief. Although, as a developing country our medical science has been improving lately, people from the remote areas still prefer the traditional medicine due to their poor socio-economic condition. From the survey on Medicinal plants used for the domestic animals, we collected 15 species belonging to 13 families. These are Malvaceae, Amaranthaceae, Amaryllidaceae, Papaveraceae, Moraceae, Meliaceae, Poaceae, Fabaceae, Boraginaceae, Cucurbitaceae, Solanaceae, Euphorbiaceae and Loganiaceae. The tribal folks of the remote woodlands are more healthier than city people. Reason behind it, is their "extensive knowledge of nature and its healing properties. This area is full of potential. Our paper is just a starting point to further research and studies. Our main purpose for this research is to acknowledge The miracles of plants and to identify and promote conservation of medicinal plant species. To sum up, plants are the Secret. They are a breath of fresh air for your body. They almost can cleanse your heart, that's how well they work.

Acknowledgement

We must acknowledge the tribal people who helped as in tracing out the medicinal plants for livestock treatment.

References

- [1] Das, P.K. (2011). Ethnoveterinary practices for cattle diseases in Ganjam district of Odisha, India. Life science leaflets 18: 700-706 .
- [2] Jain, S. K., (1963-c) Studies in Indian ethnobotany: Origin and utility of some vernacular plant names. Proc. Nat. Acad.Sci. 33: 525-530
- [3] Jain, S.K., & R.A. De Fillips (1991) Medicinal Plants of India. Vol. I a II. Reference Publications, Algonac, Michigan.
- [4] Khare , C.P. (2007). Indian Medicinal plants.
- [5] Köhler-Rollefson I.(2000) Traditional pastoralists as guardians of biological diversity, Indig Knowle Dev Monitor, 1(3).
- [6] Mishra, D. (2011). Ethnoveterinary practices and use of herbal medicine for treatment of skin diseases in cattle: A case study in Polsara Block, Ganjam district, Odisha , India. Veterinary world 4(6): 250-253 .
- [7] Panda, T.,Mishra, N., Pradhan, B.K., Rout , S.D., Mishra, R.K. and Mohanty, R.B. (2017). Plants used in traditional healthcare of livestock: A case study from Kendrapara district, Odisha, India. Journal of medicinal plant studies . 5(4): 175-182.

- [8] Saxena, H.O., Brahmam, M., The Flora of Orrisa, Vol 1-4. Orrisa Forest Development Corporation Ltd, Bhubaneswar , Odisha , India, 1994-1996, LXIV+2918
- [9] Matin, G.J., (1995). Ethnobotany: a 'People and Plants' Conservation Manual .Chapman and Hill , London