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**Exploration of traditional knowledge for treatment of skin, mouth and foot diseases of domestic animals in remote area of Ganjam District, Odisha, India**

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**A B S T R A C T**

Traditional knowledge is highly significant for persistence of community based approaches to veterinary care. Ancient human race had discovered natural plant products to satisfy his needs including relief from his personal ailments as well as of his fellow domestic animals. A few of such traditional knowledge is tried to be retrieved in this study. The present study was undertaken to exploration of traditional ethnoveterinary knowledge in remote rural community of Ganjam District. The experimental work was conducted during 2013-2015 to collect data regarding this undiscovered field of herbal treatment in the study area. The rural area were visited and interacted with different group of people like local traditional healers, farm owner, farmers and common people. The major threatening factors that changing the macro and macro habitats of important medicinal plants were due to deforestation and agricultural expansion. Documentation of the medicinal plants and associated indigenous knowledge can be used as basis for developing management plans for conservation and sustainable use of medicinal plants in the area and validation of these plant preparations for veterinary treatment.

**Introduction**

Indigenous traditional knowledge is an integral part of the culture and history of a local community. It is evolved through many years of regular experimentation on the day to day life and available resources surrounded by the community. It is the unique traditional local knowledge existing within and developed around specific

condition of man and women and indigenous to a particular geographic area. Live-stocks are a major asset for rural households throughout the developing world and are increasingly regarded as a means of reducing poverty. However, many rural areas are characterized by limited or no accessibility to veterinary services. In India

the veterinary medical system is generally codified traditional and folk medicine and no such comprehensive record is available. This branch of science is simply continued from generation to generation through word of mouth without any written record, with time-tested reality, available only with the age-old people in the rural and tribal belts.

Natural products from plant, animal and minerals have been the basis of the treatment of human disease since time immemorial. It is estimated that more than 75 % of people in developing countries still rely upon traditional medicine based largely on plant species for their primary health care. Herbal medicines are currently in demand and their popularity is increasing day by day. The various indigenous systems such as siddha, ayurveda, unani and allelopathy use several plant species to treat different ailments (Rabe and Staden, 1997). Plant derived drugs come into use in the modern medicine through the use of plant material as indigenous cure in folklore or traditional systems of medicine.

The ethno-veterinary treatment restricted to a few herbal Healers in our society due to lack of proper documentation. Those practices are still continuing in the minds of local people and all tribals, which have got greater accountability towards livestock management. In rural India and tribal societies, use of plants as veterinary medicines are very common and some sporadic reports from different parts of India are available on the use of plants for the treatment of animal disease (Girach, 1992; Sahoo and Bahali, 2003; Sahu *et al.*, 2007). The tribes depend on the adjoining forests to fulfill their requirements of food, fodder, firewood, fibre and medicine (Sharma *et al.*, 1999).

The last three decades have witnessed a rapid decline in the genetic diversity of

various crops and depletion of forest species in the region (Nayar *et al.*, 2009). Living close to nature, rural folks, especially tribals are familiar with thousands of wild plants and animals. By empirical reasoning and trial or error, tribals and rural folks have screened and developed a highly complex and specific knowledge on the local flora and fauna, main point is to tap these entire knowledge systems before they are wiped out or lost. Basing upon these backgrounds an attempt was made to collect hidden information of the plants used by the rural and tribal people of Ganjam District for some common disease in animals related to skin, foot and mouth disease. This investigation is specifically intent to document the traditional skill of the rural and tribal communities in utilizing plant resources for animal health care practices.

### **Study area and methodology**

The Ganjam District in the Odisha state extends from 18.46' to 20.17' north latitude and 83.48' to 85.10' longitude, spreading over a geographical area of 8070.60 square kilometer. Ganjam is the southernmost district of Odisha. Agriculture and animal husbandry are most important economic sectors of the district. Most of the inhabitants live in rural areas and they chiefly depend upon the above two sectors to earn their live hood. Disease is the most common factor that affects rural economy. Common people generally depend upon the traditional methods of treatment of their animals.

Fifty five villages in Goudgotha, Merikote, Ekalpur, Manikpur, Sharabadi, Kusumgadia, Gangapur Gram Panchayat were surveyed during 2013-2015. An ethnoveterinary study was conducted to gather information on the traditional usage of plants in livestock healthcare system using a semi structured interview,, observation and field guided

walk with farmers, livestock owners, local and traditional healers who were willing to share their indigenous knowledge. Information on various diseases in livestock, their causes, symptoms, herbal treatment methods Medicinal plants/parts used for different purposes were recorded.

The ethnoveterinary data obtained was checked and compared with existing literature and was analyzed with quantitatively and qualitatively. The plant species are enumerated with their scientific name, local name, family, part used and method of medicine preparation and administration.

### **Result and Discussion**

It is evident from the above study that substances derived from plants have provided reliable sources of medicines to the livestock owners for the good health of their animals. Traditional human population has a broad encyclopedia of their livestock consisting of wild plants which are used for various ailments. The present study has opened a gate to find out the almost lost branch of medicinal science. The socioeconomic condition of the local people, their strong belief, easily availability of herbal medicines and past experience with these preparations help them to adopt EVM as their first choice.

These results prove that the use of plants or their derived products as therapeutic resources to the treatment of animal diseases represent a common practice and is culturally important. Farmers and others folk being herbal practitioners have added these medications to their indigenous knowledge

system through trial and error, spanning over hundreds of years and covering several generations. It is also evident that most of the knowledge regarding EVM is transferred from one generation to another orally by these age old people, herbal healer, livestock owner, etc. They have sufficient information about the diseases, their symptoms, method of preparation and administration of herbal medicines prepared from the plants/plant parts available around them. They prefer EVM for treatment of their livestock as their first choice. However in severe cases they visit the local veterinarians. In most of the cases herbal preparations have no side effects and are with miraculous effects in treating the disease. Similar type of work are carried out by different Authors in other part of the India and world including Odisha (Sharma *et al.*, 1999; Sahoo and Bahali, 2003; Sharma *et al.*, 2004; Sasmal *et al.*, 2004; sahuo *et al.*, 2007; Phodani *et al.*, 2010; Adhikary, 2014)

Ethnoveterinary medicine is very effective in cases of common ailments like skin, foot and mouth diseases. EVM is a low cost and easily available. The medicinal plants culturally associated with the life style of the local people. The efficacy of all medicinal preparation adopted by the local people and traditional healer's are not well documented and ascertained in the laboratory. All though some work in this regard have been undertaken at different places of world, yet a lot more have to be worked out to establish the importance of the use of EVM. Due to rapid urbanization and industrialization forest cover area has decreased a lot and as such availability of the medicinal plants has become scarce many of them are on the verge of extinction.

**Table.1** Description plants used in ethnoveterinary medicine

Scientific name	Local name	Family	Part used	Preparation and administration of plant parts
<b>Skin disease</b>				
Acacia nilotica L.	Babul	Mimosaceae	Gum	Babul gum powered 15 gms mixed with an egg to form a paste and applied over affected area.
Allium cepa Linn.	Piaz	Liliaceae	Bulb	Bulb is ground to paste and mixed with mustard oil to form an ointment and applied topically over affected area.
Amaranthus spinosus L.	Kantamarish	Amaranthaceae	Root	Roots are collected and shade dried. Dried roots are paste with pure water and applied locally to cure eczema or abscesses.
Annona squamosa L.	Sitaphala or ata	Annonaceae	Seeds	Seeds are powdered and applied topically over the infected areas.
Azadirchta indica A.Juss	Neem	Meliaceae	Leaves	Leave of Neem and Turmeric ( <i>Curcuma longa</i> L.) in a ratio of 1:1 in gram are ground to make a paste with a little amount of water. It is made luke-worm and applied topically for 5–8 days.
Calotropis gigantea (L.) R. Br.	Arakha	Asclepiadaceae	Leaves	Dried leaves of <i>Calotropis gigantea</i> , Turmeric ( <i>Curcuma longa</i> L.) power karanj ( <i>Pongamia pinnta</i> ) oil in ratio of 6:3:3 are mixed and boiled to form a cream and applied for treatment of eczema and other skin infections.
Cocos nucifera	Nadia	Arecaceae	Fruit	Ash of pericarp is applied to treat skin disease
Datura metel L.	Dudura	Solanaceae	Fruit	Fruit powder is mixed with copper sulphate and paste made with coconut oil applied on the affected skin.
Ocimum sanctum L.	Tulasi	Lamiaceae	leaves	Leave paste of <i>Ocimum</i> (2 talbe spoon) with <i>Piper nigrum</i> (2 gms) mixed properly and applied on affected area of skin.
<b>Foot and mouth disease</b>				
Acacia catechu (L.f.) Wild.	Khaira	Mimosaceae	Bark	Bark of the plant collected and dried in shade. The dried bark is boiled with water for making a

				solution and used to eat.
Azadirchta indica A.Juss	Neem	Meliaceae	Leaf	Leaf decoction prepared with boiling water. It is made luke-worm and applied topically to affected area of foot and mouth for 5–8 days.
Cayratia trifolia L. Domin	Ambileti	Vitaceae	Root	Root paste mixed with turmeric is given to cattle for foot and mouth diseases.
Melia azedarach L.	Mahaneem	Maliaceae	Leaf	Leaf paste is prepared with water and applied to phatua (Foot and Mouth infection)
Puper longum L.	Pipalli	Piperaceae	Fruit	Powder of fruit mixed with union juice and applied on affected area of foot and mouth.
Semecarpus anacardium L.f.	Kalabhalia	Anacardiaceae	Fruit	Fruit of the plant is warmed. After warming tar-like oil extracted from the pericarp of the fruit is applied over the abscess of the cattle for rapid cure. Warmed oil is applied on the hoof of the cattle suffering from foot and mouth disease.
Sesamum indicum L.	Rashi	Pedaliaceae	Seed	Dry seeds are powdered and mixed with ghee and fed to animal to treat foot and mouth disease.
Tinospora cardifolia (Wild.) Hook. F. &Thoms.	Guluchilata	Menispermaceae	Stem	Climber stem is dried and cut into small pieces. Smoke of <i>Shorea robusta</i> resin is passed through the dried pieces of stem to reach the mouth and foot area of cattle which are infected.
<b>Tick and Maggots</b>				
Aloe barbadensis Mill	Gheekuanri	Liliaceae	Leaf	Juice of fresh leaf is applied to the skin to kill ticks and parasites.
Artemisia nilagirica	Panairi	Compositae	Leaf	Leaves are collected and milled for juice. The prepared juice is applied externally to infected area.
Aristolochia bracteaeta Retz.	Paniri	Aristolochiaceae	Leaf	Green leave paste is prepared and applied affected area to kill ticks and maggots.
Careya arborea Roxb	Kumbhi	Lecythidaceae	Bark	Root bark is made into paste and applied on body of cattle to kill

				tick and maggots.
Cochlospermum religiosum (L.) Alston	Kapasiya	Cochlospermaceae	Stem	Stem fibers are collected from plant. Stem fibers tied to the neck of the cattle and sheep to kill ticks.
Gardenia gummifera L.f.	Kurudu	Rubiaceae	Resin	The resin is made into power and sprinkled on sores of cattle to keep tick and maggots away.
Scleichera oleosa (Lour.) Oken	Kusum	Sapindaceae	Seed	Oil is procured from seed and message on skin to kill ticks and flea.

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