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MEDICINAL PLANT AND ETHNO-VETERINARY PRACTICES USED IN SOUTH AND NORTH ANDAMAN

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ABSTRACT

A majority of population lives in the villages of Andaman & Nicobar Islands depends not only on the farming but a major role of their livelihood is animal rearing. Due to remote locality, the cure for their cattle from diseases is not easier therefore; they develop their own methods by using locally available plants in their backyard, nearby forest and home remedies to cure their animals and poultry. Many of these practices are quite effective and being used by them since long past. In most of the cases plants or plant parts are given as such, seldom in combination with some other plants, plant parts or home remedies. The old aged farmers and livestock owners gained the ethnoveterinary knowledge from their own experience or from their ancestors through the words of mouth. A field survey was done to study and document these ethnoveterinary medicinal plants. A total 41 plants from 27 families were identified which are of ethno veterinary importance from the different villages of South and North Andaman districts of Andaman & Nicobar Islands.

Key words: Andamans, Ethno Veterinary practices

INTRODUCTION

Animal husbandry in A&N Islands has its origin in 1858 when some cattle were transported from mainland. The planned activity and expansion of these sectors took place with the establishment of Animal Husbandry Department in 1942 and the post colonial settlement of refugees from Bangladesh, Sri Lanka, Burma and some other parts of India. The animal population of these islands consists of cows, buffalos, goats, pigs and poultry birds of mostly indigenous type. Livestock is a profitable and integral component in agriculture and an important activity for accelerating the rural livelihood and nutritional security of rural farmers of these islands; however, livestock farming is not an organized / scientific farming except few farmers. A majority of population live in Andaman villages are settlers who came here before independence and their main livelihood support is farming and animal husbandry. Livestock and poultry of these islands in general were free from most of the dreaded diseases. Over the years due to entry of livestock, meat, meat products, egg, poultry & Feed from mainland the diseases like Chronic Respiratory disease,

Infectious Bursal disease, Ranikhet disease in poultry have been reported. The climatic condition of the islands, high rainfall and high humidity favors the prevalence of parasitic and gastrointestinal parasitic diseases in cattle. Due to isolated spread of 572 islands in remote locations, rural farmers are dependant on indigenous knowledge for the treatment of their livestock and poultry rather than immediate Animal Husbandry and veterinary services.

Ethno-veterinary medicine (EVM) system is indigenous knowledge on animal health (Mc Corkle, 1989) refers to holistic and interdisciplinary study of traditional knowledge, skills, methods, practices and folk beliefs of the people about animal health care found among the local community (Mc Corkle, 1996). Traditional practices cover diseases and their control including remedies and clinical practices for treatment and prevention to keep their animals healthy and productive. The medicines that livestock keepers are using at their level, other than modern synthetic drugs are a part of the indigenous knowledge system of people all over the world (Mathius, 1989, 2004). The traditional knowledge differs not only from region to region but also

among and within communities. Traditional knowledge has been developed through trial and error and deliberate experimentation, therefore, it is less systematic, less formalized and not universally recognized as a valid method of disease control in animals; further traditional healers have less to offer in the treatment and control of epidemic and endemic infectious diseases like Rinderpest, Septicemia, Anthrax and acute life-threatening bacterial diseases though they can cope with a reasonable spectrum of common diseases such as diarrhea, cuts and wounds, cold and cough, worms, retention of placenta, sickness and stomach problems. With such successes, very little of this traditional knowledge has been documented in developing countries. In recent years, however, increasing attention has been paid to ethno-veterinary knowledge and local veterinary practices (Martin, 2001). Being hot spot for medicinal plants, A & N Islands where however ethno-veterinary knowledge has had no place in mainstream veterinary medicine. Hence, the indigenous knowledge and the natural resources are depleting day by day due to lack of proper records and documentation. Several ethno-veterinary studies have been conducted in many parts of India but still no work has been done in A & N Islands. Therefore, a study was carried out to document the information on ethno-veterinary practices being followed in pristine Andaman Islands.

METHODOLOGY

The study area and survey

18 villages from South Andaman and 1 village from North Andaman were selected (Fig 1). 18 villages



Fig 1: Survey area: South & North Andaman

of South Andaman are; Maymyo, Manjeri, Indira Nagar, Guptapara, Manpur, Collinpur, Chouldari, Sippighat, Calicut, Cattleganj, Bamboo flat, Stewartganj, Wimberliganj, Malapuram, Wrightmyo, Manarghat, Shoalbay, Kodyaghat and one village from North Andaman is Diglipur. The information on indigenous/traditional/local knowledge, practices, and beliefs of the rural people were collected and the data were gathered from the knowledgeable persons mostly old farmers, who use these practices with their livestock or had experience about animal husbandry and ethno-veterinary medicines. Adopting the method of Jain (1964), ethno-veterinary practices were collected through personal interview, observations and group discussion from the selected households. The questionnaires were used to obtain information on medicinal plants with their local names, parts used, mode of preparation and administration. A total of 10 informants, comprising 8 males and 2 females were identified between the ages of 48 and 74 from each village. They were selected based on their knowledge of medicinal plants either for self-medication or for treating others. The informations thus collected and presented in simple descriptive manner.

RESULTS

The results of the survey are presented in table 1. There were various practices, conditions and ailments used by the local people to cure their animals. Many of these practices are quite effective and being used by them since long past. A total of 78 different plants including kitchen spices like garlic, onion, ajowain, cardamom, clove and cinnamon etc were found to be of ethnoveterinary use. Some selected plants that are known and frequently uses in veterinary practices are enumerated with botanical name, family, common names, parts used and uses.

DISCUSSION

A total of 41 genera from 27 families; 1 from each Acanthaceae, Acoraceae, Anareadeaceae, Apiaceae, Asclepiadaceae, Araceae, Caesalpinaceae, Cariaceae, Convolvulaceae, Compositae, Crassulaceae, Gentianaceae, Gramineae, Meliaceae, Moringaceae, Musaceae, Piperaceae, Rutaceae, Sapotaceae,

Table 1. Ethno Veterinary Practices used by local people of Andaman Islands

Botanical name and family	Local name	Parts used	Method of preparation and administration	Medicinal uses
<i>Acacia catechu</i> (Mimosaceae)	Supari, Betel-nut, Cutch tree, Heartwood	Leaves	The leaves are soaked well in water.	Applied for 7 days to cure foot diseases
<i>Achras sapota</i> (Sapotaceae)	Sapota, Chiku, Tree potato, Sapodilla plum	Fruits	One fruit is crushed and fed daily.	To cure diarrhea in cattle.
<i>Acorus calamus</i> (Acoraceae)	Vacha	Whole plant	Crushed whole plant with ash of burnt wood, two buds of pippli, salt and turmeric powder and fed twice a day.	To cure diarrhea in goat.
<i>Adhatoda vasica</i> (Acanthaceae)	Vasak, Malabar nut	Leaves	Leaves are fed to the cattle twice a day for 2-3 days.	To cure diarrhea.
<i>Aegel marmelos</i> (Rutaceae)	Bael, Sirphal, Bengal quince, Golden apple, Stone apple	Fruit pulp	The pulp of a green fruit is boiled, cooked the tender fruit in low heat and taken out the pulp without seeds, prepared juice of pulp, given once in a week.	To cure diarrhea. To increase the body weight and milk production.
<i>Arachis hypogaea</i> (Fabaceae)	Peanut, Ground nut, Monkey nut	Leaves	Leaves are given with feed.	To increase the milk production and body weight.
<i>Azadiarachta indica</i> (Meliaceae)	Neem	Leaves	50 g neem leaves crushed in water. Neem leaf paste and oil. Neem oil	To cure stomachache. Applied in cut and wounds, abscess and broken horn To remove insects from the eyes and to control flies nuisance.
<i>Bambusa spinosa</i> (Gramineae)	Bamboo	Leaves	Feed a handful of bamboo leaves once in a day for 2-3 days. Bamboo leaves with rice husk/100g dried bottle gourd leaves or one kg bamboo leaves thrice a day. Raw bamboo leaves Crushed Bamboo leaves with one spoon black salt and a small amount of heeng (<i>Asafoetida</i>)	To kill ecto-parasites. Diarrhea Retention of placenta, tongue sore Appetizer / To improve the digestion/ To cure the stomach problem and fever.

<i>Bauhinia racemosa</i> (Fabaceae)	Kachnar, Jhinjheri, Sirhatta, Asimlous	Leaves	Leaf juice	Applied over forehead to heal redness of eye.
<i>Bauhinia variegata</i> (Fabaceae)	Orchid tree, Camel's Foot Tree and Mountain- ebony.	Bark and root	Root paste using cow urine. Bark decoction Two cups of root decoction twice daily.	Applied twice a day on the eyelids to treat blindness. To wash and cure wounds in foot and mouth. To expel the placenta
<i>Bryophyllum</i> <i>pinnatum</i> (Crassulaceae)	Pathar chutti, Pather Chat, Patharchur,	Leaves	Leaves are fed	To cure indigestion in goat.
<i>Calotropis procera</i> (Asclepiadaceae)	Madar, aak	Latex of plant	1/2 spoonful of latex extract with an equal amount of mustard oil. A loop made of thick thread is put around the neck of the cow. Now the medicine is applied well on the loop and kept it moving around the neck.	In sickness
<i>Carica papaya</i> (Caricaceae)	Papaya, Papaw	Fruit, seed and root	Juice	To cure fever in goat
<i>Centella asiatica</i> (Apiaceae)	Brahmi, Indian Pennywort, Brahma manduki, Medhak bhaji	Whole plant	Fed with Pad patti (<i>Phyllanthus sps</i>)	Diarrhea
<i>Cissus</i> <i>quadrangularis</i> (Vitaceae)	Harjor, Parande	Stem	Crushed stem with egg white. One teaspoon of salt is mixed in hot water and hot compression is given to the broken area with this solution. A paste is prepared by crushing 2 pieces of "harjor" stem (each 6 inch long), 100gm raw turmeric and 25 gm alum. And slightly cooking in 100 ml mustard oil. Juice with turmeric and jeera.	Applied on broken bones and Bandage is supported by bamboo splinters to avoid dislocation. Application of hot compression and medicines are repeated until healing. To increase the body weight and milk production and as dewormer.

<i>Cocos nucifera</i> (Arecaceae)	Coconut	Endosperm of the fruit, Oil	Fed one coconut daily. Naphthalene powder with coconut oil Turmeric powder with coconut oil.	To increase the milk production and body weight To cure wounds. Applied over the wound area twice a day wound.
<i>Colocasia esculenta</i> (Araceae)	Auram	Stem	2-3 spoonful salt with the stem is rubbed on the tongue Crushed well matured leaves and tablets are prepared and are fed 2 times for 7 days	To cure sore/hardening. Diarrhea.
<i>Cynodon dactylon</i> (Poaceae)	Doob, Doorva, Dhub, Harialil	Whole plant	Paste of the flowers with ginger and covered the wound with a tight cloth- bandage.	To cure wound
<i>Datura metel</i> (Solanaceae)	Dhatoora, Black Datura, Thorn apple	Whole plant	Seed powder Crushed leaf Soak tobacco leaves in water for 12 hours and then crushed well. Crushed raw fruit and leaf paste	Skin diseases Insect bite Tick infection. Mastitis
<i>Eclipta alba</i> (Asteraceae)	Bhringaraj, Bhangra, kala makka	Whole plant	Mixed with feed	To improve body weight and milk production.
<i>Enhrdra fluctuance</i> (Asteraceae)	Helencha	Leaves	Fed for 3-4 days	Deworming
<i>Entada phaseoloides</i> (Mimosaceae)	Gila	Fruit and seed	Seed powder with water one crushed fruit with some neem leaves and 50 gm salt Fruit paste and wrapped with banana leaf and fed.	Diarrhea and Dysentery Appetizer
<i>Ipomoea batatas</i> (Convolvulaceae)	Sweet potato	Leaves	Mixed with feed	To improve milk production and body weight.
<i>Jatropha curcas</i> (Euphorbiaceae)	Arandi	Seeds	Crushed one or two seeds with water and drenched.	To treat constipation in cattle and goats.

<i>Lagenaria leucantha</i> (Cucurbitaceae)	Bottle gourd	Fruits and leaves	100 g leaves thrice a day Boil one fruit and mixed with feed. Boiled fruit with molasses and fed for 7 days. Four leaves and 30 g salt - paste is applied thrice for two days.	Diarrhea. In retention of placenta When animal takes its own placenta. Hump sore
<i>Luffa acutangula</i> (Cucurbitaceae)	Turia, Ridge gourd	Fruit	Dried ridge gourd is burnt on one side and smoke is applied to nose to inhale the smoke	Cold and coughing.
<i>Mangifera indica</i> (Anacardiaceae)	Mango	Fruits, seed and leaves	Seeds. Leaves Mango fruit and ginger are macerated and fed with water.	Dysentery To expel placenta In flatted stomach.
<i>Mimosa pudica</i> (Fabaceae)	Touch me not, Chuimui	Whole plant	Shade dried whole plant and fed.	To improve weight and milk production
<i>Momordica charantia</i> (Cucurbitaceae)	Bitter gourd	Fruits	Crushed inner white mass and paste is given with banana leaves or 100 g leaves alone or with green bamboo leaves fed thrice a day.	In Diarrhea
<i>Moringa oleifera</i> (Moringaceae)	Drumstreak, Saijhan, Sajna	Leaves and stem bark	Paste of the stem. Leaves	In external wound For good health and better lactation after delivery.
<i>Nicotiana tobacum</i> (Solanaceae)	Tobacco	Leaves	Paste of crushed leaves and lime / Paste of one tobacco leaf, 1-2 scales of garlic, one spoon salt and lime./Paste of one tobacco leaf and 15-20 g of sugar. Paste of 1 dry tobacco leaf, 3-4 spoonful white lime and 3-4 spoonful neem oil. Leaves are soaked in water for 12 hours, crushed well and applied on the affected areas.	Applied on the broken horn and covered with a bandage. Applied on wound. In tick infection. Within 24-48 hours of application of this mixture, all the ticks get removed.

<i>Musa paradisiacal</i> (Musaceae)	Banana	Whole plant	Fed directly the inner most white portion of banana flower to the animal once in a day for 2-3 days. Dried and crushed roots with water and allowed to swallow. Paste of fruit and sugar candy in water twice a day.	To cure diarrhea. In cases of snake bites and worms. To cure the blisters and hoof sore.
<i>Oryza sativa</i> (Poaceae)	Rice	Grains	Boiled dhan (rice) Four kg of boiled crushed paddy mix with half kg of wheat flour. Paddy grains with salt are rubbed on the tongue.	In retention of placenta. To let down milk. In tongue sore.
<i>Phyllanthus niruri</i> (Euphorbiaceae)	Niruri, Bhui amla, Jungli amla	Whole plant	Whole plant mixed with feed.	To improve the body weight and milk.
<i>Phyllanthus sps</i> (Euphorbiaceae)	Pad patti	Leaves	Leaves mixed with feed Mix the <i>Phyllanthus sps</i> with <i>Centella asiatica</i> (medhak bhaji)	To control loose motion. To cure diarrhea in poultry.
<i>Piper nigrum</i> (Piperaceae)	Black pepper, Gol mirch	Fruit	25 g powdered black pepper is powdered mixed with 1/2 kg hot ghee and fed.	In case of snake bite.
<i>Swertia chirata</i> (Gentianaceae)	Chirota	Fruit	Soaked in water overnight and the water is drenched.	<i>Deworming</i>
<i>Tamarindus indica</i> (Caesalpinaceae)	Tamarind, Imlı	Fruit and leaves	Leaf paste Mix tamarind pulp with salt and rubbed over the tongue. A 200 g leaf is boiled in water and with 10 g of salt. 250 g leave is boiled in water to form a thick mass and drenched. 1/2 cup juice of each old tamarind and tender guava leaves. Boiled leaves in water and given the hot fomentation over the swollen area by dipping a cloth in the water. Mix leaves with turmeric powder and salt and rub on the affected portion.	Applied to reduce wound swelling. Anorexia Flatulence In muscle sprain/ injury. Recovery occurs within 3-4 days /Mastitis In mouth ulcer.

<p><i>Vitex trifolia</i> (Verbenaceae)</p>	<p>Samalu</p>	<p>tubers and leaves</p>	<p>Leaves are made hot and tied around injured part.</p> <p>Boiled neem leaves and mango tree stem bark with tubers of the <i>V. trifolia</i>, and applied.</p> <p>Boiled tubers in water and water is applied and applied turmeric powder for 2-3 days.</p>	<p>For muscle sprain/ injury.</p> <p>In mouth ulcer</p> <p>To wash the wart in poultry</p>
<p><i>Weedelia biflora</i> (Compositae)</p>	<p>Burma booti</p>	<p>Whole plant</p>	<p>Leaves are crushed, macerated and applied on the wound 2-3 times a day.</p> <p>Paste of booty leaves.</p> <p>Plant is crushed and fed with water. Paste of the grinded booty leaves is applied on the muscles.</p>	<p>Broken horn</p> <p>Applied for Muscle sprain/ injury.</p> <p>In snake bite</p>



Interaction with farmer of Collinpur



Interaction with farmer of Maymyo



Interaction with farmers of Indira Nagar



Interaction with farmer of Manpur



Colocasia esculenta



Phyllanthus Spp (Pad patti)



Cissus quadrangularis

Verbenaceae and Vitaceae; 2 from each Astaraceae, Solanaceae and Mimosaceae; 3 from each Cucurbitaceae and Euphorbeaceae and 4 from each Poaceae and Fabaceae were documented as ethno veterinary use. The study surveyed 24 types of diseases in cattle and poultry. The information obtained is comparable favourably with the result of similar studies conducted in other states of India (Tiwari and Pande, 2010; Bish et al., 2004; Shah et al., 2008; Pande et al., 2007; Kulkarni et al., 2007; Kiruba et al., 2006; Nigam et al., 2010; Biren et al., 2007; Balakrishnan et al., 2007; Gaur et al., 2010; Khan, 2009; Deshmukh et al., 2011; Sathish et al., 2010)

From this study it was revealed that the local peoples use the medicinal plants not only to cure various diseases but also for increasing body weight and milk production. There was eleven plants found to be used in diarrhea i.e, *Achras sapota*, *Acorus calamus*, *Adhatoda vasica*, *Aegel mormelos*, *Bambusa spinosa*, *Centella asiatica*, *Colocasia esculenta*, *Entada phaseoloides*, *Lagenaria leucantha*, *Momordica charantia*, *Musa paradisiacal* and *Phyllanthus sps* while ten plants; *Aegel mormelos*, *Arachis hypogea*, *Cissus quadrangulari*, *Cocos nucifera*, *Eclipta alba*, *Ipomoea batatas*, *Mimosa pudica*, *Oriza sativa*, *phyllanthus nirru* and *Zea mays* were found to be used for increasing body weight and milk production. The four plants *Bambusa spinosa*, *cissus quadrangularis*, *Lagenaria leucantha* and *Nicotina tabacum* reported various ethnoveterinary uses.

These traditional ethno veterinary informations suggested that local people of these islands have some unique knowledge of disease causes and patterns and their treatment using available resources inside and outside the home. As most of these methods showing very effective medicinal properties, local people use them very frequently. Documentation of these methodologies has reiterated the strong base for conservation of medicinal plants and underlined the importance and crucial role of medicinal plants in livestock farming of these islands. In addition to this, the traditional medicinal system gives better result in drug resistance diseases with zero side effects (Davis, 1994). In future, detailed chemical and pharmacological investigations of these traditional formulations and conversion of medicinal plants to

develop local herbal products will help local farmers to access to herbal therapy at their hand extended. In summary, an attempt has been made to document and describe the knowledge, practices and belief of the rural community in veterinary practices in South and North Andaman. Based on this exploratory survey, it is inferred that rural livestock farmers of Andaman Islands have vast and rich knowledge and understanding of Ethno Veterinary Practices.

ACKNOWLEDGMENT

Authors express their sincere thanks to the local peoples and farmers of the study area for their kind cooperation, valuable information and support during the survey. Authors also thankful to our Director to encourage and facilitates us and for providing financial assistance.

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