



Therapeutic Plants Utilized by Conventional Healers to Fix Stomach Ailments of Ruminants in Sothern Arawali Region of Rajasthan, India

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Abstract: The southern Arawali zone is mostly possessed by tribal clans, for example, Bheels, Meena, Gameti, Rawat, and so forth living in the remote and out of reach zones, near woods on the uneven tract. They adhere for the most part the dairy creatures; Buffaloes, Cows, Sheep, and Goat. The dairy creatures are the benchmark for their day by day occupation. This paper gives posting of herbal plants utilizes by peaceful ranchers in the southern Arawali locale to fix sicknesses like the diarrhea, dysentery, fart and gastro-intestinal worms in the ruminants. For this, data have been collected through close to home meetings, talks, meeting with neighborhood healers and domesticated animals proprietors. We have given listing of total 43 medicinal plants along with method to prepare ethno-veterinary medicines from southern Arawali region of Rajasthan, India (Geog. Lat. range 23°N-25°N, Geog. Long. Range 73°E-75°E).

Index Terms: Ethno-veterinary medicinal plants, stomach ailments, Ruminants, Southern Arawali region, Healers.

I. INTRODUCTION

Illnesses have been the major issue looked by each human culture; accordingly every realized human culture has created available resources to adapt up to it making an arrangement of medication (William, 1955). As indicated by World Health Organization (WHO), over 80% of the world's kin, for the most part in poor and less created nations, rely upon customary medication for their essential medicinal services necessities (Bajaj and Williams, 1995). They utilize restorative plants for themselves as well as for their local creatures. Hamann (1991) recommended that it is neither conceivable nor attractive to supplant this home grown prescription with current medication in any event during this century. Creature cultivation is a significant wellspring of pay

for the country poor in the India where 70% of the domesticated animals are in the hands of little and negligible ranchers and landless workers. Rajasthan is the biggest condition of the Indian Union where numerous tribal clans are dispersed in various pieces of the state. In the southern Arawali district of Rajasthan, tribes are for the most part chosen different remote uneven tracts.

A huge obstruction for the development as far as generation from domesticated animals and poultry is the predominance of illnesses of financial significance as these reason enormous monetary misfortunes broadly. The creature maladies that requirements anticipation, control and regulation are; e.g., Foot and Mouth Disease (FMD), Peste des petits ruminants (PPR), Brucellosis, Anthrax, Haemorrhagic Septicemia (HS), Black Quarter (BQ), Classical Swine Fever, New Castle Disease (Ranikhet), Avian Influenza (AI), and so on (Mondal and Yamage, 2014). Dairy creatures are steady wellspring of pay for provincial people groups. There is additionally monetary misfortune from discouraged milk generation because of the stomach related infections. Poor admission, conflicting eating examples and toxic feeding regularly bring about more rumen acidosis and gastric issues in ruminants (Hernandez et al., 2014). The ethno-veterinary (EV) investigations in Rajasthan were performed by different researchers. A brief account is given here-in-below. Mathew (1984) considered plants utilized as veterinary medication as galactagogue and grain in the forest of Rajasthan. Singh and Pandey (1980) published a book on ethno-botany of Rajasthan and referenced a couple EV plants utilized by the innate community of Rajasthan. Kumar (2000) examined on identification and documentation of EV plants utilized by sheep ranchers in Rajasthan. Katewa and Choudhary (2000)

made an EV study of plants in Rajsamand district. Takhar (2004) added to people herbal veterinary drugs of southern Rajasthan. Jain et al. (2005) reported some phyto-therapeutic claims by tribes of southern Rajasthan and reported 20 restorative plants having a place with 15 families. Katewa and Galav (2005) detailed conventional herbal medications from the Shekhawati area of Rajasthan for different infirmities, for example, skin sexual, stomach related and respiratory-related issues. The account of toxic plants from Arawali region could be found in the work of Katewa et al. (2006). Sandhaya et al. (2006) inferred that the indigenous customary information of therapeutic plants of different ethnic networks, where it has been transmitted orally for a considerable length of time is quick vanishing from the essence of the earth because of the approach of present day innovation and change of conventional culture. Shekhawat and Batra (2006) revealed family unit cures utilized against creature and creepy crawlly nibble in Bundi dist., Rajasthan. Yadav (2007) described EVP are shelter for improving indigenous cow's efficiency in Gaushalas.

Some basic stomach sicknesses in ruminants are the looseness of the bowels, swell blockage, Flatulence and gastro-intestinal worms. Obstruction, which goes with different infections, is a side effect of hidden deformities in either travel of fecal mass through the gut or poop, a regularly analyzed useful gastrointestinal issue. It is commonly acknowledged that debilitated gastrointestinal motility and instinctive paresthesia structure the major neurotic and physiological reason for gastrointestinal brokenness (Hertig, 2007). Ruminants ought to consistently approach adequate long search, to keep up great rumination and clean drinking water. Ruminants are a class of profoundly fruitful herbivores and incorporate buffalo, cattle, deer, goats and sheep. Ruminants share an advantageous association with the microorganisms that dwell in their rumen, which incorporates microscopic organisms, protozoa and growths. The host creature gives the microorganisms a situation that supports their development and generation since it is warm, dull, soggy, anaerobic and around a pH of 6. Ruminants touch for as long as 8 hours out of every day and ruminate for up to an additional 8 hours of the day (Czeglédi, 2013). As an end-result of giving the microorganisms the ideal spot to live, the micro-organisms condensation feed, for example, cellulose and hemi-cellulose, making side-effects that are absorbable by the host creature, including unpredictable unsaturated fats (acetic acid derivation, propionate and butyrate). The microorganisms additionally give the host creature a protein source by joining amino acids and non-protein-nitrogen (which can be high in youthful verdant field) into their very own body protein. As microorganisms can contain up to 70% protein when they are washed through the lower portions of the stomach related tract, they give most of the protein

required by the creature (Farmlands Lifestyle Guide, 2016). The microorganisms likewise orchestrate nutrients B, K and H (biotin), which the host creature can't combine and might be insufficient in feeds. During the aging procedure the rumen microorganisms produce methane, which must be burped out. In the event that it ends up caught in the rumen it can cause swell, which can be lethal (Danielsson et al., 2017). The maturation procedure additionally creates heat – higher fiber feeds produce more warmth, which can be gainful when dry bovines are being wintered outside (Moran, 2005; Farmlands Lifestyle Guide, 2016). Thus, in the present work, we have reported the information regarding local livestock health conditions and knowledge available among community regarding stomach related disease.

II. DATA SET

The data on ethno-veterinary medications has obtained through close to home meetings, dialogs, meeting with neighborhood healers and domesticated animals proprietors. The conventional wellbeing specialists or Traditional Health Practitioners (THPs) studied were great witnesses for the arrangements of definitions and the treatment of creatures. THPs had their own instant details, for example, home grown tablets, decoctions and balms for treating various illnesses. They drew in nearby inborn individuals for gathering therapeutic plants from the backwoods destinations.

III. RESULTS AND DISCUSSIONS

It is observed that the domestic animals (e.g., Buffaloes, Cows, Sheep, and Goat) naturally infested with stomach related diseases (timpanists, diarrhea, dysentery, stomach-worms, constipations etc.) Cattle, goats, sheep and buffalo are herbivores and have very large digestive system because they eat large amounts of grass and chew the cud (Ruminants). Ruminants make a lot of gas in their stomachs and belch once every minute, if the belching stops the stomach swells with gas. In the following, we have presented list of medicinal plants uses to cure constipation, indigestion, stomach-ache, flatulence, intestine worms, diarrhoea and dysentery in domestic animals by local community of the southern Arawali region.

Table I. Medicinal plants uses to cure constipation in domestic animals observed from southern Arawali region of Rajasthan, India.

S.N	Plant Name	Vernacular Name	Habit /part used	Formulation
1	<i>Abrus precatorius</i> L. (Fabaceae)	Chirmi	Herb/leave	Dose: Paste of leaves

2	<i>Abutilon indicum</i> L. (Malvaceae)	Kanghi	Shrub / Seed	Dose: Oral portion of around 20 gram glue is allowed once per day
3	<i>Acacia nilotica</i> L. (Mimosaceae)	Desi Babool	Tree/ Seed and Bark	Dose: Paste of seeds, dried bark powder and bubbled water sieved through muslin material, separated and offered orally to dairy cattle two times every day
4	<i>Annona Squamosa</i> L. (Annonaceae)	Sitaphal	Shrub / Fruit	Dose: Dried and squashed Custard apple is given in its unripe structure
5	<i>Arachis hypogaea</i> L. (Fabaceae)	Munghphali	Herb/ Seed	Dose: Seeds with Jaggery is given two times per day
6	<i>Cassia fistula</i> L. (Caesalpinaceae)	Garmal Amaltas	Tree/ Seed	Dose: Seeds are given with fodder. The seeds are somewhat sweet and have purgative, carminative, cooling, improves the hunger and antipyretic action
7	<i>Citrullus colocynthis</i> L. (Cucurbitaceae)	Gad-Bumba	Climber/ Root	Dose: Decoction of roots is given to the creature two times every day
8	<i>Crotalaria burhia</i> (Fabaceae)	Jhunda	Herb/ Whole Plant	Dose: Extract of whole plant is given
9	<i>Digitaria adscendens</i> (Poaceae)	Drubor Daru	Herb/ Seed	Dose: Blend of seeds of Digitaria adscendens, tribulus

				terristris, pedaliu murex, and squashed products of Cucumis melo and Citrus lanatus is given
10	<i>Ephedra ciliate</i> (Gnetaceae)	Oontphog	Tree/ Whole Plant	Dose: Decoction of about 5 kg whole plant is given
11	<i>Linum usitatissimum</i> L. (Linaceae)	Alsi	Herb/ Seed	Dose: Seeds fed with Animal nutrition
12	<i>Parkinsonia aculeate</i> L. (Caesalpinaceae)	Raam-Babool or Vilayati-Babool	Shrub / Leave	Dose: Paste of leaves given to Goat
13	<i>Salvadora Persica</i> L. (Salvadoraceae)	Khara jal	Tree/ Leave	Dose: Paste of leaves given
14	<i>Sesamum indicum</i> L. (Pedaliaceae)	Til	Shrub /Seed	Dose: Paste from the seeds are given
15	<i>Trachyspermum ammi</i> (Apiaceae)	Ajmo or Ajwain	Herb/ Seed	Dose: Blend is set up by including 250 gm seed powder of plant with 250 gm sugar sweets and 12gm Ferula asafoetida given orally

Table II. Medicinal plants uses to cure Flatulence in domestic animals observed from southern Arawali region of Rajasthan, India.

Sr. No	Plant Name	Local Name	Habit /Part used	Formulation
1	<i>Anisomeles indica</i> L. (Lamiaceae)	Ghabro	Herb/ Whole	Dose: 200 gm whole plant is given to buffalo

			Plant	
2	<i>Boswellia serrata</i> Roxb. (<i>Burseraceae</i>)	Salar	Tree/Bark	Dose: Decoction of bark is given to the animal
3	<i>Desmostachya bipinnata</i> L. (<i>Poaceae</i>)	Dab	Herb/Whole Plant	Dose: Decoction of whole plant is given to buffaloes
4	<i>Ferula asafoetida</i> L. (<i>Apiaceae</i>)	Hing	Tree/Resin	Dose; Resin is given with milk
5	<i>Nicotiana tabacum</i> (<i>Solanaceae</i>)	Tambakhu	Shrub/Leave	Dose: Mixture of 10 gm dried leaves of tobacco in addition to 50 gram sodium carbonate and 500 ml gathered oil is given
6	<i>Plumbago zeylanica</i> L. (<i>plumbaginaceae</i>)	Chitrak	Shrub/Seed	Dose: Seeds decoction of around 250 gm seeds of <i>Trachyspermum ammi</i> and 2-4 leaves of <i>plumbago zeylanica</i> is given
7	<i>Ricinus communis</i> L. (<i>Euphorbiaceae</i>)	Arandi	Tree/Seed	Dose: Half tea spoon seed oil is given
3	<i>Delonix alata</i> Gamble (<i>Caesalpinaceae</i>)	Handeda	Tree/Stem	Dose: Crushed stem bark decoction is given
4	<i>Oryza sativa</i> L. (<i>Poaceae</i>)	Chaval	Herb/Seed	Dose: Boiled rice grain with black gram is given twice a day for a week
5	<i>Soymida febrifuga</i> (<i>Meliaceae</i>)	Rohin	Tree/Bark	Dose: Bark of <i>Butea monosperma</i> and <i>Soymida febrifuga</i> (100 gm each) is squashed with 500 ml of spread milk allowed thrice daily till recuperation
6	<i>Terminalia bellirica</i> (<i>combretaceae</i>)	Baheda	Tree/Fruit	Dose: Mash of around 750 gm new natural product or about 500gm of dried organic product powder is given orally two times every day for at any rate 7 days
7	<i>Trachyspermum ammi</i> (<i>Apiaceae</i>)	Ajmo	Herb/Seed	Disease- Diarrhoea Dose: Decoction of 25 gm seed powder and 50 gm shake salt is offered orally to goat and sheep
8	<i>Trianthema portulacastrum</i> L. (<i>Aizoaceae</i>)	Hato	Herb/Leave	Disease- Diarrhoea 250 gm leave paste and 10 gm seeds of <i>piper nigrum</i> is given orally
9	<i>Tridax procumbens</i> L. (<i>Asteraceae</i>)	Lardeolapsi	Herb/Leave	Disease- Diarrhoea Dose: Infusion of 100 gm dried leaves is given orally to

Table III. Medicinal plants uses to cure Diarrhoea in domestic animals observed from southern Arawali region of Rajasthan, India

Sr. No	Plant Name	Local Name	Habit /Part used	Formulation
1	<i>Catunaregam spinosa</i> (<i>Rubiaceae</i>)	Kharedi	Shrub/Whole Plant	Dose: Around 500 gm of entire plant with 50 gm of Jiggery and 25 gm of dried Rhizome powder of <i>Curcuma longa</i> is given to creature in type of a grub
2	<i>Cleome viscosa</i> L. (<i>Cleomaceae</i>)	Hulhul	Herb/Seed	Dose: Paste of around 50 gm of seeds of <i>Cleome viscosa</i> is given with water through soaking tube thrice daily

Table IV. Medicinal plants uses to cure stomach ache, gas problem, Intestine worms and food-poisoning in domestic animals observed from southern Arawali region of Rajasthan, India.

Sr. No	Plant Name	Local Name	Habit /Part used	Formulation
1	<i>Achyranthes aspera</i> L. (<i>Amaranthaceae</i>)	Adhijhara	Herb/Rhizomes	Disease- Stomach-ache Dose: Decoction

	<i>ae)</i>			prepared from about 100 gram roots of this plant and 50 gram rhizomes of <i>Curcuma longa</i> is given
2	<i>Corchorus depressus L. (Tiliaceae)</i>	Chamkas	Herb/Leaf	Disease- Stomach-ache Dose: Leaves are given as fodder
3	<i>Helicteris isora L. (Sterculiaceae)</i>	Gomat	Stem / Fruit	Disease- Stomach-ache Dose: Grinded fruit powder is given
4	<i>Pedaliium murex L. (Pedaliaaceae)</i>	Mota Gokhru	Herb/Whole Plant	Disease- Stomach-ache Dose: Whole Plant given in form of fodder
5	<i>Zigiber officinale (Zingiberaceae)</i>	Sonth	Herb/Tuber	Disease- Stomach-ache Dose: 250 g milk fat plus 10gm dried tubers powder and 10 gm black pepper is boiled then cooled (annealing) and given
6	<i>Allium sativum L. (Liliaceae)</i>	Lahsun	Herb/Bulb	Disease- Indigestion Dose: Bulbs plus 1.5 litter milk plus two eggs of hen to treat impaction (failure of digestion)
7	<i>Brassica napus L. (Brassicaceae)</i>	Sarson	Herb/Seed oil	Disease- Fart Dose: A blend arranged by including half kg until oil, 10 gram asafoetida and 50 gm garlic glue. it is offered orally to creature two times per day for 2 days
8	<i>Cucumis melo L. (Cucurbitaceae)</i>	Kachra	Herb/Fruit	Disease- Fart Dose: Fruit powder mixed in ghee is given to cattle
9	<i>Triticum aestivum (Poaceae)</i>	Genhu	Herb/Seed	Disease- Fart Paste of roasted seed mixed with fodder is given to goat
10	<i>Azadirachta Indica</i>	Neem	Tree/Leaf	Disease-Gastro-intestinal worms

	<i>(Meliaceae)</i>			Dose: Leaves juice
11	<i>Calotropis procera (Asclepiadaceae)</i>	Aak	Shrub /Late x, Stem	Disease- Gastro-intestinal worms Dose: Gynostegium blended in spread milk and given to animals also, 120gm blossoms are bubbled, sifted and oral portion given to camel and goat, once day for period of three days
12	<i>Celosia argentea L. (Amaranthaceae)</i>	Garkha	Herb/Root	Disease- Food-poisoning Dose: Oral dose of 100 ml juice of <i>Celosia Argentea</i> root mixed with extract of fruits or leaves of <i>Tamarindus indica</i> is given

CONCLUSION

In this work, we have considered the therapeutic plants utilized by livestock holders of southern Arawali region of Rajasthan, India to fix stomach related sicknesses in dairy creatures. The minimal ranchers and innate individuals of this area keep Buffaloes, Cows, Sheep, and Goat for their livelihood. Our examination watched absolute 43 medicinal plants has a place with various families utilizes by creature holders to cure seasonal and bacterial tainted illnesses like clogging, acid reflux, stomach-hurt, fart, digestive system worms, loose bowels and looseness of the bowels.

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REFERENCES

- Bajaj, M., Williams, J.T. (1995). Healing forest Healing people. IDRC medicinal plants New York. New Delhi, India.
- Czeglédi, L. (2013). Applied Sciences, Agriculture, Animal husbandry and breeding. Animal Husbandry III, TÁMOP-4.1.2 A1 and TÁMOP-4.1.2 A2.
- Danielsson, R., Dicksed, J., Sun, L., Gonda, H, Muller, B., Schnurer, A., & Bertilsson, J. (2017). Methane production in dairy cows correlates with rumen methonogenic and bacterial community structure, Front Microbial, 8, 226.

- Farmlands Co-operative Society Limited, (2016). Link: https://www.farmlands.co.nz/Documents/Guides/Farmlands_Lifestyle_Guide.pdf.
- Hamann, O. (1991). The joint IUCN-WWF, plant conservation and interest in medicinal plants. In conservation of medicinal plants (Ed. Akerte, Hay wood and Synge Cambridge), University Press, New York, 13-21.
- Hertig, V.L., Cain, K.C., Jarrett, M.E., Burr, R.L., & Heitkemper, M.M. (2007). Daily stress and gastrointestinal symptoms in women with irritable bowel syndrome. *Nurs Res.* 56:399–406.
- Hernández, J., Benedito, J.L., Abuelo, A., & Castillo, C. (2014). Ruminant Acidosis in Feedlot: From Aetiology to Prevention *The Scientific World Journal*, Article ID 702572, 8. doi.org/10.1155/2014/702572.
- Jain, A., Katewa, S.S., Galav, P., & Sharma, P. (2005). Medicinal plant diversity of Sitamata wild life sanctuary, Rajasthan, India. *Journal of Ethnopharmacology.* 102, 143–157.
- Katewa, S.S., & Chaudhary, B.L. (2000). Ethno veterinary survey of plants of Rajsamand district of Rajasthan. *Vasundhara*, 5, 95.
- Katewa, S.S., & Galav, P. (2005). traditional herbal medicines from shekhawati region of rajsthan. *Indian J. of traditional knowledge.* 4(3), 237-245.
- Katewa, S.S., Jain, A., Chaudhary, B.L., and Galav, P. (2006) Some Unreported Medicinal Uses of Plants from the Tribal Area of Southern Rajasthan. *BULL. BOT. SURV. INDIA.* 47, 1-4.
- Kumar, D. (2000). ethno-veterinary practices in sheep. Central Sheep and Wool Research Institute, Avikanagar, Rajasthan, India
- Katewa, S.S., Galav, P.K., Ambika, N., & Anita, J. (2008). Poisonous plants of the southern Arawali hills of Rajasthan. *Indian J. of Traditional Knowledge.* 7(2), 269-272.
- Mathew, K. S. (1984). Plants used as veterinary medicines, galactagogues and fodder in the forest area of Rajasthan. *J com Tax Bot.* 5, 785-788.
- Mondal, S.P., Yamage, M. (2014). A Retrospective Study on the Epidemiology of Anthrax, Foot and Mouth disease, Haemorrhagic Septicaemia, Peste des Petits Ruminants and Rabies in Bangladesh. 2010-2011, *PLoS One*, 9(8), e104435.
- Moran, J. (2005). Tropical Dairy farming: Feeding management for small holders dairy farmers in the humid tropics. Landlinks Press. 312.
- William, C., 1955. Applied Anthropology in medicine in Krolber. A. R. (Ed.) *Anthro today*, The University of Cgicago Press, Chicago.
- Thakhar, H. K. (2004). Folk Herbal veterinary medicines of southern Rajasthan. *Indian J of traditional knowledge.* 3(4), 407-418.
- Sandhya, B., Thomas, S., Isabel, W., and Shenbagarathai, R. (2006). Ethnomedicinal plants used by the Valaiyan community of Piranmalai Hills (Reserved Forest), Tamilnadu, India – A pilot study. *Afr. J. Trad. CAM.* 3(1), 101-114.
- Shekhawat, D., & Batra, A. (2006). Ethnobotany some household remedies used against animals and insect bite in Bundi Dist. (Rajasthan). *Ethnobotany*, 18, 131-134.
- Singh, V., Pandey, R. P. (1980). Medicinal plant lore of the tribals of East Rajasthan. *J. Econ. Taxon. Bot.* 1,137-147.
- Yadav, D. K. (2007). Ethno-veterinary practices: A boon for improving indigenous cattle productivity in Gaushalas, *Livestock Research for Rural Development.* 19(6).
