

Animal healthcare practices by livestock owners at Pushkar animal fair, Rajasthan

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Pushkar animal fair is organized every year near Ajmer, Rajasthan in the month of *Kartik* (October or November). The fair attracts people not only from India but also from all over the world as a tourist destination. This is one of the largest animal fair, where livestock owners of Rajasthan bring their animals to sell and purchase animals. During the festival, interviews with knowledgeable livestock owners were conducted to document the use of herbs for the treatment of ailments of animals. The study revealed 43 plant species of ethnoveterinary medicinal uses which are used to treat 30 diseases of animals.

Keywords: Pushkar animal fair, Traditional knowledge, Ethnoveterinary practices, Rajasthan

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In India, enough attention has not yet been given to the traditional veterinary herbal remedies. Even the *Rigveda*, *Atharvaveda* and 8 divisions of *Ayurveda* the pioneer documents with curative properties of plants, have not provided much information on veterinary remedies¹. There has been a rich tradition and indigenous knowledge about animal healthcare in India. Remedies based on locally available herbs are still prevalent. Plants and other household remedies being practiced by the aboriginals of Rajasthan have been discussed. The uses or information recorded here, have not been mentioned hitherto. A lot of efforts have been made to document information on herbal veterinary medicines in India²⁻⁷. Traditional animal based medicines have been described in *Unani* and *Ayurvedic* Systems of Medicine in India. An account of botanical ethnoveterinary prescriptions in Rajasthan has also been described⁸⁻¹². Rajasthan has a total livestock population which consists of cows, buffaloes, sheep and goats. Rural communities of Rajasthan have a predominantly livestock based economy. Some of the best breeds of cattle, goat, sheep, camel, wild ass and even wild ungulates are found here. Though, there is no authentic evidence of when and how plants came into usage for curing the domestic animals, the rural people seem to be aware

of it through generations. Modern healthcare in the tribal and rural areas of Rajasthan is characterized by the deficiency of infrastructure, qualified personnel and medicine. Rajasthan is placed at sixth place in India from the point of view of tribal population. *Bheel* and *Meenas* are the two important major tribal groups inhabiting the region; *Damor*, *Garasiya*, *Dindor*, *Ahari*, *Raot*, *Parmar* and *Kathodi* constitute minor tribal groups. As the famous livestock owners having good ethnoveterinary knowledge assemble in the fair from the entire state of Rajasthan, therefore, an attempt has been made to document their traditional knowledge by conducting interviews with knowledgeable medicine man on ethnoveterinary medicines.

Methodology

The traditional knowledge of plant based remedies for the treatment of ailments rests with the medicine man, all of which belong to one family of hereditary indigenous practitioners. Skills and experience are passed on from one generation to the next by word of mouth and are guarded like secrets. The medicine man collects the plants and animal products needed for a particular application, either directly from the forest or farm or from the local shops. In view of secretiveness of traditional medicine men and women, it was decided to interview a number of elderly people, who have a great deal of practical knowledge

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Table 1 — Ethnoveterinary plants used in various ailments of animals

Plant name/ Family/ Local name	Mode of administration
<i>Acacia nilotica</i> (Linn.) Willd. ex Del. (Mimosaceae) Kikar, Babul	Bark of babul, seeds of <i>Trachyspermum ammi</i> and <i>Vernonia cinerea</i> mixed with jaggery is given to the animal twice a day for one month as a tonic to cure overall weakness. Bark infusion is given to the animal in sunstroke; bark extract is given to the animals orally to cure dysentery.
<i>Aegle marmelos</i> (Linn.) Corr. (Rutaceae) Bel	The spine is pricked in the tail of the animal to cure its degeneration. Pulp of fruits is applied over the mouth and hooves of affected animal to cure foot and mouth disease.
<i>Aerva lanata</i> (Linn.) Juss. ex.Schult. (Amaranthaceae) Bui	Root decoction and fruit pulp of <i>Citrullus colocynthis</i> is given to the animal for relief in constipation.
<i>Aerva pseudotomentosa</i> Blatt & Hall. (Amaranthaceae)	Poultice of inflorescence is tied locally to cure muscular injury in any body part of the camel.
<i>Annona squamosa</i> Linn. (Annonaceae) Sitafal	Leaf powder mixed with mustard oil is given orally to domestic animals in constipation and dysentery.
<i>Apluda mutica</i> Linn. (Poaceae) Palia	Whole plant is given as a fodder to cure poisoning in animals due to insect bite.
<i>Argeria nervosa</i> (Burm.f.) Boj. (Convolvulaceae) Samandar bel	Poultice of leaves is applied over neck to cure tonsillitis in animals.
<i>Aristolochia bracteolata</i> Lam. (Aristolochiaceae) Kalipaad	Leaf paste is applied over the infected hooves to cure foot and mouth disease twice a day till animal gets relief.
<i>Balanites aegyptica</i> (Linn.) Delile (Balanitaceae) Hingot	Bark paste is applied with the finger twice a day for 7 days just like soot in the injured eye of animal.
<i>Bombax ceiba</i> Linn. (Bombacaceae) Hemla	Bark is crushed with water and is given orally to the animal as purgative.
<i>Butea monosperma</i> (Lam.) Taub. (Fabaceae) Khakra	Flower decoction is given to the animal twice a day for 10 days to cure dysurea as well as paralysis
<i>Calotropis procera</i> Br. (Asclepiadaceae) Aakdo	Root paste is applied to remove sting of scorpion from the skin and also for the removal of external parasite like lice and ticks.
<i>Capsicum annum</i> Linn. (Solanaceae) Lal-mirch	Paste of dried fruit powder mixed with sugar is applied in the throat of animal to cure tonsillitis.
<i>Cassia angustifolia</i> Vahl. (Caesalpiniaceae) Sonamukhi	Leaves are fed to the camel to cure flatulence.
<i>Caesalpinia bonduc</i> (Linn.) Roxb. (Caesalpiniaceae) Karkas	Leaf extract is given orally to animals in dysentery and also to kill the worms in stomach.
<i>Cissampelos pareira</i> Linn. (Menispermaceae) Kalipar	Whole plants are fed to the animal with fodder to cure dysentery and blood tinged diarrhoea.
<i>Citrullus colocynthis</i> (Linn.) Schard. (Cucurbitaceae) Gartumba	Root decoction is given to the animals to cure constipation. A mixture of honey, root juice of <i>Citrullus colocynthis</i> , and mustard oil is applied internally for easy opening of uterus during delivery. Fruit decoction of the plant, seeds of <i>Vernonia cinerea</i> and jaggery is given to the animal to cure constipation and flatulence. Pulp of roasted fruits mixed with flour of <i>Pennisetum typhoides</i> and salt is fed to the animal to cure impaction with fever.
<i>Clerodendrum phlomides</i> L.f. (Verbenaceae) Arni	Leaf paste of <i>Clerodendrum phlomides</i> and tobacco is applied over the hooves of affected animal twice a day to cure foot and mouth disease and secondary infections.
<i>Cocculus hirsutus</i> (L.) Diels (Menispermaceae) Jal-jamni	Whole plants decoction is given to bullocks to remove stones from the urinary tract.
<i>Corbichonia decumbens</i> (Forssk.) Exell (Molluginaceae) Patharchatti	Shoot infusion is given to animals twice a day for 8-10 days in dysurea.

(Contd)

Table 1 — Ethnoveterinary plants used in various ailments of animals—*Contd*

Plant name/ Family/ Local name	Mode of administration
<i>Cucumis callosus</i> (Rottl.) Cogn. (Cucurbitaceae) Kachra	Fruits crushed and mixed with sugar, oil and water is given to the animal to cure diarrhoea.
<i>Cyamopsis tatrigoobola</i> (Linn.) Taub. (Fabaceae) Guar	Fruits and seeds are given with fodder to cure diarrhoea.
<i>Dalbergia sisso</i> Roxb. (Fabaceae) Shisham	Leaf infusion is given to camel in sunstroke. Leaves soaked overnight in water are given orally to the camel in the morning to cure dysurea and to warm up the body.
<i>Diospyros melanoxylon</i> Roxb. (Ebenaceae) Timru	Paste of roasted fruits is applied over the mouth and hooves of animals suffering from foot and mouth disease till animal recovers.
<i>Drimia indica</i> (Roxb.) Jessop. (Liliaceae) Kolikanda	Leaf paste is applied over the udder of affected animal for 3-4 days to cure mastitis.
<i>Ficus racemosa</i> L. (Moraceae) Umra	Filtrate of plant bark paste mixed with sap of banana plant stem is given to the animal orally to cure diarrhoea during rainy season.
<i>Ficus religiosa</i> Linn. (Moraceae) Pipal	Leaf extract is given orally to the buffalo (after giving a bath) to cure dysurea and haematuria.
<i>Leptadenia pyrotechnica</i> (Forssk.) Decne. (Asclepiadaceae) Kheep	Stem infusion is given to the camel to cure flatulence. Thin piece of stem is inserted in the animal nose to remove any obstruction.
<i>Moringa oleifera</i> Lam. (Moringaceae) Sargua	Decoction of internal bark is massaged on the affected parts of the animal twice a day for relief in the arthritis pain.
<i>Paspalum scrobiculatum</i> Linn. (Poaceae) Kodra	Boiled grains are given to the animal suffering from diarrhoea as a nutritive diet for 10 days.
<i>Phoenix sylvestris</i> (Linn.) Roxb. (Aricaceae) Khajoor	Fruits are given to the animal daily for oyster induction.
<i>Sesamum indicum</i> Linn. (Pedaliaceae) Til	Massage of seed oil and sugar in equal ratio on affected parts is given to the animal to get relief from the arthritis pain in camels.
<i>Sorghum halepense</i> (Linn.) Pers. (Poaceae) Jowar	Seed flour mixed with water is given to the animal to cure diarrhoea and weakness.
<i>Soymida febrifuga</i> (Roxb.) A. Juss. (Meliaceae) Rohin	Bark paste is applied as an antidote over the injury caused by dog bite; also given orally to cure fever. Leaf infusion is given to the animal once only to cure diarrhoea.
<i>Syzygium cumini</i> (Linn.) Skeels (Myretaceae) Jamun	Bark infusion is given to the animal with drenching tube to cure flatulence.
<i>Terminelia chebula</i> (Gaertn.) Retz. (Combretaceae)	Few drops of leaf paste are poured in the eyes of animals suffering from eye disease.
<i>Tinospora cordifolia</i> (Willd.) Miers (Menispermaceae)	If animals feed on poisonous plants then whole plant extract is given orally to animals causing vomiting.
<i>Tribulus terrestris</i> Linn. (Zygophyllaceae) Gokhru	Fruits are given to the animal as fodder to cure diarrhoea.
<i>Trigonella foenum - graceum</i> Linn. (Fabaceae) Methi	Infusion of seed flour is given to the animal daily for 3 days to cure haematuria.
<i>Triumfetta rotundifolia</i> Lam. (Tiliaceae) Lapta, Mondli	Root infusion is applied on neck of the animal twice a day for three days to cure neck sores.
<i>Vernonia cinerea</i> (Linn.) Less (Asteraceae) Kali Jeeri	Seeds are given to the animal to treat food poisoning. Seed infusion is give to the animal for three days to cure fever.
<i>Vigna aconitifolia</i> (Jacq.) Marechal (Fabaceae) Moth	Seed powder mixed with buttermilk is given to the animal to cure diarrhoea.
<i>Vitex negundo</i> Linn. (Verbenaceae) Negad	Leaves mixed with fodder are given to the cattle for 2-3 days to cure diarrhoea.

about use of the plants and animal products as medicine. Before taking interview Prior Informed Consent was taken from all the local practitioners. Livestock owners were interviewed about the traditional animal healthcare practices which they are still following. Wherever possible, administration of herbal medicines was observed on diseased animals to find the authenticity of information. A discussion about a particular herb with different informants from different places tends to be more helpful to record various queries about the drug. Also, personal observations are helpful for verification of the data provided by the informants at different places.

Results and Discussion

Locally available and easily accessible ethnoveterinary medicinal plants provide a cheaper treatment as compared to western drugs. The only limitation is the seasonal availability of certain plants, for which tribals have acquired different ways to preserve them for off-season uses. Most common way of preserving is sun drying. From the livestock owners of Pushkar animal fair ethnoveterinary medicinal uses of 43 plant species belonging to 30 families have been reported (Table 1). Foot and mouth disease claims hundreds of cattle heads every year. In the study, four remedies were reported to cure foot and mouth disease. Three remedies each were reported to cure diseases like fever, internal parasites, skin disease and as galactagogue, while two remedies each for diseases like infection of external parasites, diarrhoea and mastitis were reported. Ethnoveterinary medicines were also reported for constipation, broken horn, bone fracture, tonsillitis, asthma, uterine prolapse, haematuria, conjunctivitis and easy delivery. Intramuscular injection of *Datura innoxia* is also given to the animal to cure tonsillitis and tumour formation. These findings require further research for pharmaceutical validation. Ethnoveterinary medicines can provide an opportunity of new drug research for human use also. For example, Rwandan cattle raisers used a preparation made from *Neorautanenia mitis* to treat mange, a disease caused by mites that burrow under the animal's skin. Scientists found that the plant contained an ingredient that kills the mites. They were able to make an ointment for humans as an alternative providing low cost alternative¹³. Therefore, the plants reported may be clinically tested for their possible use in human medicine also. From the study it was concluded that for acute, life threatening infections and epidemics, modern medicine such as antibiotics will remain the

first choice. But for common and chronic conditions like skin diseases, worms, wounds, diarrhoea, etc. ethnoveterinary medicines can be treatment of choice especially because some antibiotics and other drugs have been overused, stimulating resistance among micro-organisms and leaving dangerous residues in meat, milk and groundwater. A combination of modern and local remedies and management practices might be the best for problems like ticks and trypanosomiasis, where neither modern nor ethnoveterinary medicine alone provides a satisfactory solution.

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