

Awareness and Adoption of Indigenous Therapies for Various Animal Husbandry Ailments in Chambal Region of Agra District

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ABSTRACT

This study was conducted in Chambal region of Agra district of Uttar Pradesh to document various indigenous therapies used by local healers and livestock owners for various animal husbandry ailments. Such therapies have been evolved by our ancestors after going through a series of experiments to access their practical worth for various disorders in livestock. Such therapies were not only eco-friendly but also cost effective and the animals can be treated in the local village environments. Today these indigenous practices are vanishing fast either due to the death of bearers of this knowledge as well as due to simultaneous results of modern synthetic drugs. Hence, it is necessary to document such indigenous therapies and validate them at research institutions. This research paper reveals an inventory of 39 indigenous animal husbandry practices for a number of ailments viz., digestive disorders, reproductive disorders, respiratory problems, etc., which were documented by interviewing the 22 local healers and 109 livestock owners. The documented therapies were once again exposed among another 120 randomly selected livestock owners to identify the extent of awareness and adoption pattern of these therapies along with its correlation with socio-personal variables.

Key words: *Indigenous therapy; Livestock; Digestive; Reproductive; Respiratory;*

In India mixed farming involving crop-livestock integration has been a way of life since the beginning of agriculture and it is now widely accepted that this is the only method, which plays pivotal role in providing gainful employment to small and marginal farmers, agricultural labourers etc., especially in lean agricultural seasons. Since ancient times, livestock are being treated through various indigenous therapies, which today are used by various local healers as well as livestock owners for various animal husbandry ailments. Such therapies have been evolved by our ancestors after going through a series of experiments to access the practical worth of a herb used for various disorders of livestock. Such therapies are not only eco-friendly but also cost effective and enable the livestock owners to treat their animals in the local village environment. Such indigenous therapies are not only vanishing fast with the death of bearers of this knowledge, but have also lost their value in recent years and are slowly and slowly being replaced by modern synthetic drugs. These drugs though provide short-term gains in treating the animals, but also provide

long-term adverse effects on health and production of livestock. Hence, the government had initiated several projects to document such indigenous therapeutic knowledge base adopted widely in rural India (*Das, et al., 2002*).

The World Health Organization in 1970 had also given emphasis in determining the scientific rationality of herbs used in indigenous medicated systems and to identify the principles responsible for genuine therapeutic effects (*Bizimana, 1997*). The documentation of indigenous therapies has further gained momentum with the establishment of the Center of Indigenous Knowledge and Rural Development (CIKARD) at IOWA University, USA in 1987 and establishment of Office of Alternative medicine (OAM) under National Institute of Health (NIH) in 1992 (*Dwivedi, 1998*). Studies conducted so far have revealed a number of factors responsible for usage of indigenous therapies in rural settings, viz., easy to understand, easy to handle and use, local availability, cost effectivity, eco-friendliness, no side effects, socially acceptable, etc.

(De et. al., 2004). Hence, it is necessary to document such indigenous therapies and validate them at research institutions. This study reveals an inventory of nearly 39 indigenous animal husbandry therapies for various livestock ailments, viz., digestive disorders, reproductive disorders, respiratory problems etc and its comparative analysis.

METHODOLOGY

This study was conducted purposively in the Chambal region of Agra district of Uttar Pradesh. The Chambal region comprises of three blocks viz., Bah, Pinahat and Jaitpurkalan and forms the southern boundary of Agra district encircled by the Chambal ravines. The livestock owners of this area are poor and the productivity of animals is also very less. The facilities of veterinary services for the treatment of animals in the interior villages, especially in ravine areas are very less, hence chances of getting a large number of indigenous therapies were better. Four villages from each block were randomly selected to collect data on indigenous therapies both from the local healers (vaidyas) as well as livestock owners using semi-structured interview schedule. In total 22 local healers and 109 livestock owners of that area were interviewed to prepare an inventory of 39 indigenous animal husbandry therapies for various animal husbandry ailments, viz., digestive disorders, reproductive disorders, respiratory problems, etc. Initially the ingredients mentioned in documented indigenous therapies were written in a local language of the villagers, which was discussed with a botanist to get their botanical names, which are indicated in italics just after the ingredient. Thereafter these identified therapies were exposed once again among another 120 randomly selected livestock owners (ten from each village) to identify its extent of awareness and adoption pattern of these therapies along with its correlation with socio-economic and socio-personal variables.

RESULTS AND DISCUSSION

The indigenous therapies used by local healers and livestock owners for various livestock ailments, viz., loose motion or diarrhea, pneumonia, constipation, eye infections, indigestion, gastro-intestinal parasites, bone fracture, urinary blockage, haematuria and stomach pain were enlisted in Table 1, indicating the frequency and percentage of awareness and adoption pattern of 120 randomly selected livestock owners.

Awareness and adoption pattern indigenous therapies for various livestock ailments : Results indicated in Table 1 reveals that the livestock owners in case of diarrhoeal conditions feed equal quantities (20 gms) of powdered harad (*Terminalia chebula*), baheda (*Terminalia bellirica*) and aonla (*Embllica officinalis*) to the animals, which was aware among 79.2% and adopted by 70.0% of the livestock owners, whereas feeding one liter of mustard oil (*Brassica alba*) empty stomach to the animal in cases of stomach ache due to diarrhea was aware among 68.3% but adopted by 59.2% of the livestock owners. It was also found that among 60.0% aware livestock owners only 32.5% adopted practice of feeding of gurhal flowers (*Hibiscus rosasinensis*) along with dry ginger (*Zingiber officinale*), black pepper (*Piper nigrum*) and turmeric (*Cucuma longa lin*) to the animal. Similarly 59.2% of livestock owners were aware using ash of dhatura fruits (*Datura stramonium*) by mixing in roti, but the same was adopted by only 27.5% of the livestock owners. However the therapy of treating diarrhea by using roots of dedhumari (*Ficus hispida*) and banana (*Musa paradisiaca*); and by using the banana flower (*Musa paradisiaca*) along with turmeric powder (*Cucuma longa lin*) was aware among 52.5% and 51.7% of the livestock owners, but adopted only by 37.5% and 35.0% of the livestock owners. It was further revealed that 43.3% of livestock owners were aware of using isabgol husk (*Plantago ovate husk*) nearly 250 gms along with 2.5 liters of 1% salty water and 39.2% of livestock owners were aware of using equal quantities of black soyabean (*Glycine max*), ragi flour (*Eleusine coracana*), tamarind seed (*Tamarindus officinalis*) and bel fruit (*Aegle marmelos*), but both practice were adopted by only 35.0% and 29.2% of the livestock owners.

Results further reveals that the livestock owners often treat pneumonic conditions of animals by various indigenous therapies. Nearly 65.8% of livestock owners were aware of providing vapour inhalation of nearly 1 Kg eucalyptus leaves (*Eucalyptus occidentalis*) boiled in 2½ liters of water, but such practice was adopted by only 52.5% of livestock owners. Similarly 52.5% of livestock owners were aware to provide smoke inhalation to the animals using tulsi leaves (*Ocimum sanctum*), sarpgandha leaves (*Rauwolfia serpentina*) and camphor (*Cinnamomum camphora*) burnt in cow dung cake, but the same was adopted by 37.5% of livestock owners, which was also reported by

Table 1 : Awareness and adoption pattern of 39 indigenous therapies for various livestock ailments.

| S. No. | Indigenous therapies for various livestock ailments | Awareness | | Adoption | |
|--------|---|-----------|------|----------|------|
| | | No. | % | No. | % |
| A. | <i>Loose motion or Diarrhea</i> | | | | |
| 1. | Dedhumari + Banana | 63 | 52.5 | 45 | 37.5 |
| 2. | Gurhal flowers + Dry ginger + Black pepper + Turmeric | 72 | 60.0 | 39 | 32.5 |
| 3. | Isabgol husk along with 2.5 liters of 1% salty water | 52 | 43.3 | 42 | 35.0 |
| 4. | Black soyabean + Ragi flour Tamarind seed Bel fruit | 47 | 39.2 | 35 | 29.2 |
| 5. | Harad + Baheda + Aonla | 95 | 79.2 | 84 | 70.0 |
| 6. | 1 liter Mustard oil | 82 | 68.3 | 71 | 59.2 |
| 7. | Banana flower + Turmeric powder | 62 | 51.7 | 42 | 35.0 |
| 8. | Ash of Dhatura fruits | 71 | 59.2 | 33 | 27.5 |
| B. | <i>Pneumonia</i> | | | | |
| 1. | Tulsi leaves + Sarpgandha leaves + Camphor | 63 | 52.5 | 45 | 37.5 |
| 2. | Eucalyptus leaves vapours | 79 | 65.8 | 63 | 52.5 |
| 3. | Tamarind fruit pulp + Mulethi powder + Jaiphal powder | 54 | 45.0 | 40 | 33.3 |
| 4. | Leaves of Van tulsi + Jamun + Sahjan + Patthar pan | 22 | 18.3 | 15 | 12.5 |
| C. | <i>Constipation</i> | | | | |
| 1. | Amaltas seeds + Jeera + Ajawain + Hing | 45 | 37.5 | 35 | 29.2 |
| 2. | Desi ghee @ 50 gms for young and 100 gms for adult | 102 | 85.0 | 98 | 81.7 |
| 3. | Harad + Chir + Brahmi + Wheat bran + Isabgol husk + Castor oil | 97 | 80.8 | 80 | 66.7 |
| D. | <i>Eye Infections</i> | | | | |
| 1. | Neem bark + Babool bark + Bitter gourd | 20 | 16.7 | 09 | 7.5 |
| 2. | Eye flushing by 2% Salt and Fitkari solution | 17 | 14.2 | 12 | 10. |
| 3. | 2 gms of Alum is mixed in 20 gms of cow ghee | 35 | 29.2 | 25 | 20.8 |
| 4. | Gainda flower + Gurhal flower | 49 | 40.8 | 28 | 23.3 |
| E. | <i>Indigestion</i> | | | | |
| 1. | Jeera paste in desi ghee | 72 | 60.0 | 60 | 50.0 |
| 2. | Castor oil + Mixture of Rock salt + Dry ginger + 0.5 gms Hing + Neem nibhori powder | 87 | 72.5 | 59 | 49.2 |
| 3. | Coriander + Black pepper + Soanth + Kutki + Belladonna + Ishvarimul + Jeera + Betel | 92 | 76.7 | 79 | 65.8 |
| F. | <i>Gastrointestinal parasites</i> | | | | |
| 1. | 500 ml of castor oil + Dry ginger + Kalmegh + Black pepper | 85 | 70.8 | 67 | 55.8 |
| 2. | Amaltas + Bhindi + Neem + Castor + Papaya | 72 | 60.0 | 59 | 49.2 |
| 3. | Tobacco extract to the animal | 99 | 82.5 | 73 | 60.8 |
| G. | <i>Bone fracture</i> | | | | |
| 1. | Harjor plant + Bamboo pieces | 55 | 45.8 | 42 | 35.0 |
| 2. | Black gram + Bamboo pieces | 42 | 35.0 | 30 | 25.0 |
| 3. | Mehendi + Turmeric + Harjor + Gurhal + Cactus + Bamboo pieces | 57 | 47.5 | 40 | 33.3 |
| 4. | Ganthjor grass + Banana roots + Bamboo stem pieces | 63 | 52.5 | 51 | 42.5 |
| H. | <i>Urinary blockage</i> | | | | |
| 1. | Jamun bark | 19 | 15.8 | 09 | 7.5 |
| 2. | Barley grain | 24 | 20.0 | 15 | 12.5 |
| 3. | Jamun bark + Brahmi + Bichkhopra + Chirchita + Sahjan | 27 | 22.5 | 13 | 10.8 |
| 4. | Pathar pan or stone leaf | 39 | 32.5 | 12 | 10.0 |
| 5. | Brahmi + Milky pollen grains of pearl millet + Palash flowers | 43 | 35.8 | 31 | 25.8 |
| I. | <i>Haematuria</i> | | | | |
| 1. | Sesame oil + Castor oil + Sugar | 22 | 18.3 | 18 | 15.0 |
| 2. | Sodium bicarbonate is fed @ 50 gm BID for 2-3 days | 77 | 64.2 | 65 | 54.2 |
| 3. | Gurhal flower + Banana stem + Pearl millet + Sesame oil | 43 | 35.8 | 31 | 25.8 |
| J. | <i>Stomach pain</i> | | | | |
| 1. | Madder plant + Turmeric + Hing | 59 | 49.2 | 42 | 35.0 |
| 2. | Coriander | 73 | 60.8 | 61 | 50.8 |

Gupta, 1992. It was also revealed that 45.0% of livestock owners were aware of feeding filterate of mixture of 100 gms of tamarind fruit pulp (*Tamarindus indica*), 10 gms of mulethi powder (*Glycyrrhiza glabra*), 40 gms of jaiphall powder (*Myristica fragrans*) to treat pneumonia, but it was adopted by only 33.3% of livestock owners. Only 18.3% of livestock owners were responsive of feeding paste of van tulsi leaves (*Ocimum canum sines*), jamun (*Syzygium cumini*), sahjan (*Moringa olifera*) and patthar pan (*Pan troglodytes*), but it was adopted only by 12.5% of livestock owners.

Results presented in Table No. 1 further reveals the use of indigenous therapies for constipation in animals. It shows that nearly 85.0% of livestock owners were aware of feeding desi ghee @ 50 gms in young and 100 gms in adult animals, but such practice was adopted by 81.7% of livestock owners. However 80.8% of livestock owners were aware of the fact that feeding mixture of harad (*Terminalia chebula*), chir (*Pinus roxburghii*), brahmi (*Bacopa monnieri*), wheat bran (*Triticum aestivum*) and isabgol husk (*Plantago ovate husk*) along with castor oil (*Ricinus Communis*) to the animal provides relief to the animal, but it was adopted by only 66.7% of the livestock owners. But only 37.5% of the livestock owners were aware of feeding equal quantities of amaltas seeds (*Cassia fistula*), jeera (*Cuminum cyminum*), ajawain (*Apium graveolens*) along with 1 gm of hing (*Ferula asafoetida*) will relief the animal from constipation, but therapy was adopted by only 29.2% of the livestock owners.

Results shown in Table No. 1 further reveals that in case of eye infections nearly 40.8% of livestock owners were alert in pouring the juice extracted from gainda flower (*Tagetes erecta*) or gurhal flower (*Hibiscus rosasinensis*) in the eyes of animal, but such practice was adopted by 23.3% of the livestock owners. However 29.2% of livestock owners were aware of using application of 2 gms of alum (*Alum or Potassium Aluminium Sulphate*) mixed in 20 gms of cow ghee in the eyes of the animal, but such was adopted by 20.8% of the livestock owners, whereas 16.7% were conscious of applying paste prepared from 50 gms each of Neem bark (*Azadirachta indica*), Babool bark (*Acacia Arabica*), Bitter gourd (*Momordica charantia*) along with 10 gms of salt, but such practice was adopted by just 7.5% of the livestock owners, which was earlier also reported by Verma & Singh, 1968. However in case of corneal opacity eye flushing of the animal was

is performed by 2% salt and fitkari (*Alum or Potassium Aluminium Sulphate*) solution was known to 14.2% but adopted by only 10.0% of the livestock owners, which was also reported by Kumar, et.al. 2002.

Results further reveals the indigenous practices used for treating indigestion in rural environment. It was shown that 76.7% of livestock owners were aware of feeding finely powdered mixture prepared from equal proportions of coriander (*Coriandrum sativum*), black pepper (*Piper nigrum*), soanthe (*Zingiber officinale*), kutki (*Picrorhiza Kurroa*), belladonna (*Atropa belladonna*), Ishvarimul (*Aristolochia longa*), jeera (*Cuminum cyminum*) and betel (*Piper betle*) to the animal, but such therapy was adopted by only 65.8% of the livestock owners. However feeding castor oil (*Ricinus Communis*) followed by feeding mixture of finely powdered 2.5 gms rock salt, 5.0 gms dry ginger (*Zingiber officinale*), 0.5 gms hing (*Ferula asafoetida*) and 2.5 gms neem nibhori powder (*Azadirachta indica*) is fed to the animal was known to 72.5%, but adopted by only 49.2% of the livestock owners' whereas 60.0% were aware to feed Jeera paste (*Cuminum cyminum*) mixed in desi ghee, but it was adopted by nearly 50.0% of the livestock owners.

Results further indicated the indigenous therapies used by livestock owners to get rid of gastro-intestinal parasites in their animals. It was found that the 82.5% of livestock owners were aware of feeding extract of tobacco (*Nicotiana rustica*) to the animal empty stomach may eliminate all the worms of the animal and the same was adopted by 60.8% of livestock owners. However 70.8% of livestock owners feed 500 ml of castor oil (*Ricinus Communis*) followed by feeding the mixture prepared from dry ginger powder (*Zingiber officinale*), kalmegh (*Andrographis paniculata*) and black pepper (*Piper nigrum*) to get rid of intestinal worms, but the same was adopted by 55.8% of livestock owners. It was also found that nearly 60.0% of livestock owners feed their animal the paste prepared from equal proportions of amaltas leaves (*Cassia fistula*), bhindi leaves (*Abelmoschus esculentus*), neem leaves (*Azadirachta indica*), castor seeds (*Ricinus Communis*) and papaya seeds (*Carica Papaya*) and the same therapy was adopted by 49.2% of livestock owners.

The data further reveals the indigenous therapies used in rural setting by the livestock owners for treating bone fracture in emergency situations. It was found that the practice of application of paste prepared from

ganthor grass (*Valeriana wallichii*) and banana roots (*Musa paradisiaca*) on the affected part with support by bamboo pieces and tightly knotted by bandage was known among 52.5% and the same was once ever adopted by 42.5% of livestock owners. But the practice of application of paste prepared from equal proportions of mehendi leaves (*Lawsonia Inermis*), turmeric (*Cucuma longa lin*), harjor leaves (*Cissus quadriangularis*), gurhal leaves (*Hibiscus rosasinensis*), cactus stem (*Opuntis ficus-indica*) was aware among 47.5% and adopted by 33.3% of livestock owners, which was also earlier reported by Ghosh, 2002. However 45.8% of livestock owners apply paste prepared from harjor plant (*Acanthus ilicifolius*) on the affected area of the animal with support by means of bamboo pieces and the same therapy was adopted by only 35.0% of the livestock owners. Nearly 35.0% of livestock keepers apply thick paste prepared from black gram (*Phaseolus radiatus*) on the affected area of the animal with support by means of bamboo pieces and the same therapy was adopted by only 25.0% of the livestock owners, which was also reported by Chander & Mukherjee (1994).

The data presented in Table 1 further reveals the therapies used by livestock keepers for urinary blockage among animals. It was found that feeding paste prepared from brahmi fruits (*Bacopa monnieri*), milky pollen grains of pearl millet (*Pennisetum glaucum*) and palash flowers (*Butea monosperma*); feeding juice extracted from leaves of pathar pan or stone leaf (*Pan troglodytes*); feeding well grinded mixture of 50 gms of jamun bark (*Syzygium cumini*), 25 gms of brahmi (*Bacopa monnieri*), 100 gms of bichkhopra grass, 100 gms of chirchita (*Achyranthes aspera*) and 50 gms of sahjan grass (*Moringa olefeira*); feeding filterate of barley grain (*Hordeum vulgare*) is boiled in water and the filterate is given to the animal and feeding paste of jamun bark (*Syzygium cumini*) was aware among 35.8%, 32.5%, 22.5%, 20.0% and 15.8%, but the same therapy was adopted by 25.8%, 10.0%, 10.8%, 12.5% and 7.5% of the livestock owners.

Results indicated in Table 1 further reveals that in case of haematuric conditions the livestock owners feed sodium bicarbonate to the animal was known among 64.2%, but adopted by 54.2% of the livestock owners, which was also reported by Lans & Brown (1998). However practice of feeding paste of gurhal flower (*Hibiscus rosasinensis*), Banana stem (*Musa paradisiaca*), Pearl millet (*Pennisetum glaucum*) and

sesame oil (*Sesamum indicum*) is fairly common among 35.8% and the same was adopted by 25.8% of the livestock owners. But the therapy of feeding equal quantities of sesame oil (*Sesamum indicum*), castor oil (*Ricinus Communis*) mixed in sugar was known among 18.3%, but adopted by 15.0% of the livestock owners, which was also reported by Patel, et.al. (1997).

Results indicated in Table 1 further reveals that in case of stomach pain in the animals the practice of feeding the boiled filterate of 100 gms of coriander (*Coriandrum sativum*) as well as the practice of feeding paste prepared from 8-10 leaves of Madder plant (*Rubia cardifolia*), 50 gms of turmeric (*Cucuma longa lin*) and 0.5 gms of hing (*Ferula asafoetida*) was aware among 60.8% and 49.2%, but the same therapies were adopted by only 50.8% and 35.0% of the livestock owners.

Results indicated so far have revealed that a high proportion of livestock owners were aware of various indigenous therapies, but their adoption proportion was rather low. This may be due to a number of reasons, viz., availability of plants or ingredient in the village, indiscriminate harvesting of natural flora and fauna of the village, instability of indigenous preparations for longer durations, no knowledge for cultivation of herbal flora in the villages, application of the therapy, therapies are to be given for longer durations, toxicity of ingredients and amount of ingredients to be mixed.

Relationship between socio-personal variables with extent of awareness and adoption pattern of indigenous practices : The data presented in Table 2 reveals the correlation coefficient of awareness and adoption pattern with various socio-personal variables of livestock owners. Result indicates that age, caste and family size have no significant relationship with the awareness and adoption pattern of indigenous therapies. However other parameters viz., education, contact with local healers, social participation, source of information and availability of credit were found to be positive and significantly correlated at 5% probability level for both the awareness and adoption pattern of indigenous therapies. It was also found that herd size and land holding size were also found to be significantly correlated with the awareness and adoption pattern of indigenous therapies at 1% level of probability. But in case of annual income the data reveals that awareness pattern was significantly correlated at 5% probability level, whereas adoption pattern was significantly correlated at 1% level of probability.

Table 2. Relationship between socio-personal variables of livestock owners with extent of awareness and adoption pattern of indigenous practices

| S. No. | Socio-personal variable | Correlation Coefficient | |
|--------|----------------------------|-------------------------|---------------------|
| | | Awareness pattern | Adoption pattern |
| 1. | Age | 0.072NS | 0.066 ^{NS} |
| 2. | Education | 0.368** | 0.208** |
| 3. | Caste | 0.053NS | 0.089 ^{NS} |
| 4. | Family Size | 0.047NS | 0.063 ^{NS} |
| 5. | Contact with local healers | 0.325** | 0.372** |
| 6. | Social participation | 0.365** | 0.395** |
| 7. | Herd Size | 0.470* | 0.432* |
| 8. | Annual Income | 0.312** | 0.275* |
| 9. | Land Holding Size | 0.262* | 0.214* |
| 10. | Source of Information | 0.361** | 0.379** |
| 11. | Availability of credit | 0.369** | 0.382** |

*Significant at 1% level of significance

**Significant at 5% level of significance

^{NS}Non Significant

CONCLUSION

The present study reveals a wide number of plant species of ethno-botanical importance, which are used by livestock owners of chambal region of Agra district of Uttar Pradesh. Several plant species were commonly used in households, but several others were documented

through local healers engaged in treating the animals in rural environments where veterinary facilities were not available. Since the study reveals that treatment with indigenous therapies in rural areas for various livestock ailments is still an unexplored area, hence a wide number of indigenous therapies used by livestock owners of chambal region needs further documentation and further testing their scientific rationality in rural settings. It is the need of the present hour to specially emphasize on reducing the extinction of these indigenous therapies, which are vanishing fast with the bearers of their knowledge. There is also a growing need for widespread publication of these indigenous therapies in local dialect to orient field veterinarians, farmers, livestock owners etc., in order to increase their acceptability in emergency situations.

Today there is also an urgent need for systematic collection, identification, documentation, storage, dissemination, conservation and validation of such indigenous therapies. Further attention shall also be directed towards patenting of effective indigenous formulations in order to utilize the India's richest resources of indigenous therapeutic knowledge base for the benefit of mankind and animal welfare.

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