



An Inventory of Medicinal Plants Used in Traditional Veterinary Medicine Practices in Pabna Region, Bangladesh

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Abstract

Traditional practices for the treatment of domestic animals with the help of plants are common in rural Bangladesh. The diversity of plants of ethno-veterinary importance was investigated in the rural area of Pabna district, Bangladesh. It was found that the local people and traditional healers utilized 43 plant species in the treatment of common livestock's ailments such as diarrhea, worm complaints, hemorrhagic septicemia, stomach problem and in-appetite, fracture of bone, inflammation, etc. From the survey it was also revealed that local people used different plant parts in different ways to get cured from the ailments of ruminants. It was concluded that the efforts on the development of cheaper ethno-veterinary services and imputes in the region should get more focused on the abundant local resources as flora and culture.

Keywords: Medicinal plants, folk medicine, ethno-veterinary, livestock ailments, Pabna, Bangladesh.

INTRODUCTION

Healthcare practices of domestic animals by using available medicinal plants prevail in rural Bangladesh since time immemorial. However, ethno-veterinary research and development encompasses a holistic, interdisciplinary study of local knowledge, associated skills, social structure and belief system of a defined area. It has emerged as an important field for the researchers and provides a sustainable veterinary alternatives to the people of the third world where modern facilities are very much lacking (Daniels *et al.* 1993, de Haan and Bekure 1991, Sckillhorn 1991, McCorke 1989).

Pabna region of Bangladesh lies between 23^o 40' and 24^o 46' North Latitude and 89^o20' and 89^o50' East Longitude and comprises an area of 4869.42 sq km. and extends approximately 107.2 km. from North to South and 48 km from East to West. The whole area is a vast, stretch of riverine terrain area. Milk Vita of Bangladesh, the largest milk-processing factory at Bhaghabari, is situated on the mid-position of this region. People from different villages

have been supplying sufficient amount of milk to run this factory and this becomes an important means of their livelihood. For this reason, a huge number of cattle are being reared in this locality. Every year, many domestic animals suffer from various diseases but experienced veterinary doctors are not available in the locality. As a result alternative treatment emerged in the locality.

Limited scientific research has focused on the use of herbal remedies in the healthcare in Pabna region. However, some works had been done in other areas of Bangladesh (Rahmatullah *et al.* 2010, Harun-Ur-Rashid *et al.* 2010). Thus, investigation needs into traditional animal production, socio-economic aspects of animal husbandry, prevailing diseases and treatments of those diseases geared towards proper understanding. Therefore, research should include surveys on plants of ethno-veterinary importance in areas where cattle appear as an important means of livelihood. Such information will not only promote the development of useful concepts in

veterinary medicine but also encourage the maintenance of bio-cultural diversity. This paper presents the results of a survey carried out to determine the diversity of plants utilized in ethno-veterinary practices in greater Pabna district, Bangladesh.

MATERIALS AND METHODS

The fieldwork for this study was conducted over 12 months (January to December, 2009) in 10 villages (Dhalar char, Maldhapara, Seikhpura, Hatigara, Purbakarmza, Kalia, Kandapara, Charangaru, Dugulia and Bentia) of greater Pabna district and mainly based on structured and semi-structured interviews (Martin 1995, Mukherjee 1993).

In this ethno-botanical study, 20 knowledgeable elders (2 from each village) between the age of 30 to 60, 5 women of 30 to 45 years and 5 traditional healers were involved who served as key informants. Besides these, 150 informants (15 from each village) age ranges from 20-60 years who served as general informants. During the course of the study, each informant visited two times in order to collect and crosscheck the information. On each occasion, informant was sought on the local names, parts used, medicinal values and process of administration. A representative sample of each plant was then collected, tagged and stored for subsequent botanical identification.

RESULTS

In the present investigation, 43 plant species were recorded from the study area, which had ethno-veterinary importance (Table 1). These plant species belonged to 31 families and highest species were found in the family Poaceae and Fabaceae. Two species were found in 6 families (such as Apiaceae, Asteraceae, Menispermaceae, Moraceae, Rubiaceae, and Rutaceae) and rest 23 families each contained one species (Table 1). From the collected information it was found that these plant species were used to prevent or cure as many as 29 diseases (Table 2). Among these, 12 were very commonly occurred in the study area (Figure 1). Different parts of plants species had been used in the traditional healthcare practices. Leaves of 27 species, roots and underground parts of 12 species, fruits of 11 species, whole plant of 9 species and bark and stem of 3 species were being used for the treatment of ailments of livestock in the study area (Figure 2).

Table 1 List of families with the respective recorded numbers of plant species used for animal healthcare.

Sl. no.	Family name	Species no.	Sl. no.	Family name	Species no.
1	Fabaceae	4	17	Averrhoaceae	1
2	Poaceae	4	18	Acanthaceae	1
3	Apiaceae	2	19	Zingiberaceae	1
4	Asteraceae	2	20	Liliaceae	1
5	Menispermaceae	2	21	Malvaceae	1
6	Moraceae	2	22	Musaceae	1
7	Rubiaceae	2	23	Polygonaceae	1
8	Rutaceae	2	24	Punicaceae	1
9	Convolvulaceae	1	25	Piperaceae	1
10	Araceae	1	26	Solanaceae	1
11	Bromeliaceae	1	27	Vitaceae	1
12	Capparaceae	1	28	Miliaceae	1
13	Cyperaceae	1	29	Myrtaceae	1
14	Euphorbiaceae	1	30	Rhamnaceae	1
15	Asclepiadaceae	1	31	Ebenaceae	1
16	Amaranthaceae	1			

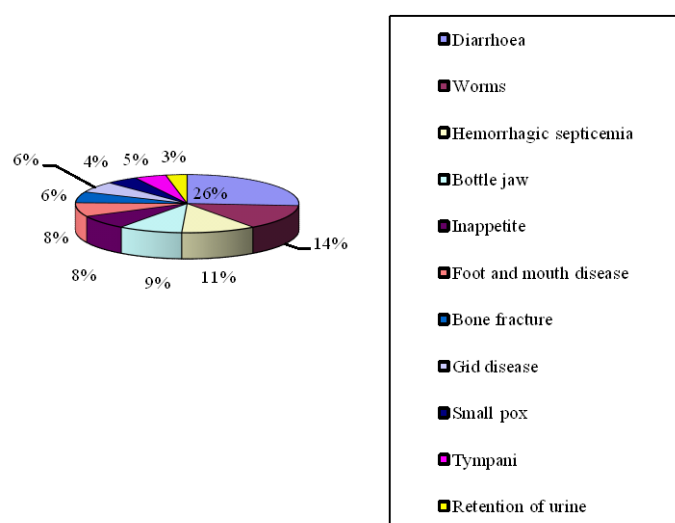


Figure 1 Percentage of plants species, which were used to prevent or cure common diseases of domestic animals.

Table 2. List of ethno-veterinary plants used for different diseases of domestic animals.

Botanical name	Local name	Family	Short description
1. <i>Ananas comosus</i> (L.) Merr.	<i>Anaras</i>	Bromiliaceae	Leaves and roots are used in worm's complaints.
2. <i>Acacia nilotica</i> (Linn.) Bel.	<i>Babla</i>	Fabaceae	Leaves and roots are used in diarrhoea.
3. <i>Aegle marmelos</i> (Linn.) Corr.	<i>Bel</i>	Rutaceae	Leaves and unripe fruits are used in stomach troubles and diarrhoea.
4. <i>Alocasia indica</i> (Roxb.) Schott.	<i>Mankachu</i>	Araceae	Leaves and roots are used in bottle jaw disease.
5. <i>Azadirachta indica</i> A. Juss.	<i>Nim</i>	Meliaceae	Leaves and barks are used in hemorrhagic septicemia and wounds.
6. <i>Alternanthera sessilis</i> (Linn.) R. Br. ex DC	<i>Shanchi-shak</i>	Amaranthaceae	Whole plants are used in bottle disease, bone fracture, stomach trouble and in-appetite.
7. <i>Asparagus racemosus</i> Willd.	<i>Satamuli</i>	Liliaceae	Whole plant and tuberous roots are used in diarrhoea.
8. <i>Acanthus ilicifolius</i> Linn.	<i>Hargoza</i>	Acanthaceae	Leaves and roots are used in bone fracture.
9. <i>Anthocephalus chinensis</i> Miq.	<i>Kadam</i>	Rubiaceae	Leaves are used in diarrhoea.
10. <i>Averrhoa carambola</i> . Linn.	<i>Kamranga</i>	Averrhoaceae	Fruits are used in gid disease.
11. <i>Bambusa arundinacea</i> . (Retz.) Willd.	<i>Bans</i>	Poaceae	Leaves and roots are used in hemorrhagic septicemia, and bleeding from wounds.
12. <i>Crataeva nurvala</i> Buch – Hum.	<i>Bonnay</i>	Capparaceae	Barks are used in hemorrhagic septicemia.
13. <i>Cynodon dactylon</i> (L.) Pers.	<i>Durba grass</i>	Poaceae	Leaves and roots are used in diarrhoea.
14. <i>Calotropis procera</i> (Aiton) Dryand.	<i>Akanda</i>	Asclepiadaceae	Leaves and roots are used in bottle jaw and inflammation.
15. <i>Curcuma longa</i> Linn.	<i>Halud</i>	Zingiberaceae	Rhizome and flowers are used in foot and mouth disease as well as bottle jaw.
16. <i>Cyperus rotundus</i> Linn.	<i>Mutha</i>	Cyperaceae	Rhizomatous tubers are used in diarrhoea, worms complaint and bloat disease.
17. <i>Citrus aurantifolia</i> (Christ.) Sw.	<i>Labu</i>	Rutaceae	Leaves and fruits are used in worms complaint, in-appetite and gid disease.
18. <i>Cissus quadrangularis</i> L.	<i>Hadjorha</i>	Vitaceae	Whole plants are used in fractured bone ailment.
19. <i>Centella asiatica</i> (L.) Urban.	<i>Thankuni</i>	Apiaceae	Whole plant is used in foot and mouth disease.
20. <i>Diospyros malabarica</i> (Desr.) Kostil.	<i>Gab</i>	Ebenaceae	Leaves and fruits are used in diarrhoea and dysentery.
21. <i>Eclipta alba</i> (L.) Hassk.	<i>Kalokeshi</i>	Asteraceae	Whole plants are used in hemorrhagic septicemia, worms and ranikhath.
22. <i>Ficus racemosa</i> L.	<i>Jaga dumur</i>	Moraceae	Leaves and fruits are used in diarrhoea and small pox.
23. <i>Foeniculum vulgare</i> Mill.	<i>Mouri</i>	Apiaceae	Fruits are used in diarrhoea and in-appetite.
24. <i>Ficus hispida</i> L. f.	<i>Thoska/ Dumur</i>	Moraceae	Leaves are used in hemorrhagic septicemia.
25. <i>Imperata cylindrica</i> (L.) P. Beauv.	<i>Shon/ Ulukhor</i>	Poaceae	Roots are used in diarrhoea and dysentery.
26. <i>Ipomoea aquatica</i> Forsk.	<i>Kalmishak</i>	Convolvulaceae	Leaves are used in gid disease and urinary troubles.
27. <i>Mimosa pudica</i> L.	<i>Lajjabati</i>	Fabaceae	Leaves and fruits are used in worms, in-appetite and gid disease.
28. <i>Musa sapientum</i> L.	<i>Aittakola</i>	Musaceae	Fruits are used in diarrhoea, gastritis, bottle disease and foot and mouth disease.
29. <i>Paederia foetida</i> L.	<i>Gandabadali</i>	Rubiaceae	Leaves are used in worms, diarrhoea.
30. <i>Persicaria hydropiper</i> L.	<i>Bishkatali</i>	Polygonaceae	Whole plant is used in snakebite.
31. <i>Piper betle</i> L.	<i>Pan</i>	Piperaceae	Leaves are used in tympani.
32. <i>Punica granatum</i> L.	<i>Dalim</i>	Punicaceae	Leaves are used in fractured pain.
33. <i>Ricinus communis</i> L.	<i>Veranda</i>	Euphorbiaceae	Fruits are used in constipation, worms and retention of urine.
34. <i>Sesbenia sesban</i> (Linn.) Merr.	<i>Jayanti</i>	Fabaceae	Leaves are used in worms and stomach pain.

35. <i>Sida cordifolia</i> L.	<i>Berela</i>	Malvaceae	Leaves are used in small pox and hemorrhagic septicemia.
36. <i>Solanum melongena</i> Wall.	<i>Begun</i>	Solanaceae	A bushy shrub. Fruits are used in in-appetite and bloat disease.
37. <i>Sonchus arvensis</i> L.	<i>Ban palang</i>	Asteraceae	A tall herb rich in milky latex, with creeping perennial rootstock. Whole plants are used in tympani and diarrhoea.
38. <i>Syzygium cumini</i> (Linn.) Skiel.	<i>Kaloram</i>	Myrtaceae	Leaves and barks are used in diarrhoea.
39. <i>Tamarindus indica</i> Linn.	<i>Tantul</i>	Fabaceae	Leaves and fruits are used in bottle disease and ranikhath.
40. <i>Tinospora tomentosa</i> Miers.	<i>Padma gulancha</i>	Menispermaceae	Leaves are used in foot and mouth disease.
41. <i>Tinospora cordifolia</i> Miers.	<i>Gulancha</i>	Menispermaceae	Leaves and stems are used in hemorrhagic septicemia and foot and mouth disease.
42. <i>Vetiveria zizanioides</i> (Linn.) Nash.	<i>Benna</i>	Poaceae	Roots are used in diarrhoea.
43. <i>Zizyphus mauritania</i> Lamk.	<i>Kul / Boro</i>	Rhamnaceae	Leaves and fruits are used in diarrhoea, tympani, bloat disease and small pox .

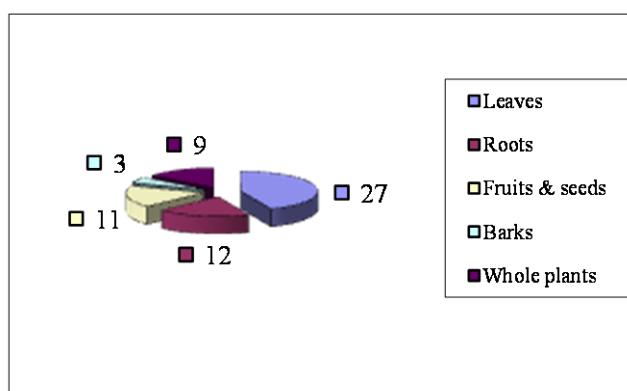


Figure 2. Number of plants, based on their used parts in traditional healthcare for domestic animal.

DISCUSSION

The collected information is comparable with the result of other studies in Bangladesh (Rahmatulla *et al.* 2010, Harun-or-Rashid *et al.* 2010) and in West Bengal, India (Das and Tripathi 2007). Traditional animal healthcare practices provide a readily available low cost alternative to modern veterinary imputes and services in rural communities of Bangladesh. The result of this study showed that people used number of plants in the treatment of common ailments such as diarrhoea and stomach problem (12 plants), hemorrhagic septicemia (7 plants) helminthes or worm (6 plants), foot and mouth disease (5 plants), in-appetite (4 plants) and other common diseases (Figure 1). Again the techniques of administration of the remedies were relatively simpler

than the complex techniques involved in modern medicines. These indigenous animal healthcare techniques were widely practiced by the people in the area where communication problem was more acute.

No published information exists on the diversity of plants of ethno-veterinary importance in Pabna region. This is because the region was not regarded as an important livestock producing area. However, recent development has focused on research on small holders ruminant production system in other areas e.g. in Nigeria (Kolawole *et al.* 2007, Okoli *et al.* 2002, Daniels *et al.* 1993, Arowlo and Awoyele 1982, Nweude and Ibrahim 1980) in Sub-Saharan Africa (de Haan and Bekure 1991) and in Pakistan (Dilshad *et al.* 2008, Farooq *et al.* 2008). Under such circumstances, information on indigenous plants with veterinary importance becomes crucial since it provides the clues by means of which research could be focused on a particular therapeutically action thus leading to a circumvention of the more costly Western methodologies. Research efforts geared towards the development of cheaper animal health inputs and services in Least Developed Countries (LDC), should, therefore, focus on indigenous resources such as flora and culture.

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