Traditional knowledge on zootherapeutic practices among some folk medicinal practitioners of Bangladesh

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ABSTRACT

Although medicinal plants form the chief ingredient in the formulations of folk medicinal practitioners of Bangladesh, there are also occasional uses of animal parts. The present study explores the use of various animal, bird and insect species among three randomly selected folk medicinal practitioners in Brahmanbaria, Narsinghdi, and Rajshahi districts of the country. The three practitioners, among themselves, were observed to use thirteen species of animals, which included turtle, cockroach, bull, goat, wild cattle, camel, fox, crow, crab, leech, earthworm, sparrow, and water hen. These species were used for treatment of asthma, insanity, being touched by 'evil wind', to increase sexuality in males, epilepsy, as female contraceptive, eye disorder, mental disorder, rheumatic pain, to improve health of weak children, any type of severe pain in body, and puerperal fever. Turtle shell was used for treatment of infections in leg of cattle. Zootherapy is common in many traditional medicinal systems of the world. It is suggested that scientific attention be given to the traditional use of animals for therapeutic purposes, the scientific validation of which can lead to improvement of health in people.

Key words: Zootherapy, folk medicine, fauna, Bangladesh

Introduction

Zootherapy is the use of animal or animal-derived metabolic products (like animal feces, urine) for the healing of animal and diseases of domesticated animal. Animals have formed an integral part of the process of healing human beings, and the use of animals is ingrained in the culture and minds of many people in various countries of the world. Although described under the general term 'animal', these include various forms like echinoderms, arthropods, fish, reptiles, birds, and mammals. Use of all the afore-mentioned species for healing human beings has been described in the State of Bahia in northeastern Brazil (Costa-Neto, 1999). A study conducted in the city of Feira de Santana in Bahia State revealed that an insect, namely Trigona spinipes Fabricius (Apiidae) was used for treatment of coughs and bronchitis; a reptile, Catman cf. latirostris Daudin (Alligatoridae), was used for treatment of asthma and stroke; bird species like Gallus domesticus Linnaeus (Phasianidae) and Rhea americana Linnaeus (Rheidae) were used for treatment of catarrh and boils, and general aches, respectively; mammalian species used included Trichecus inunguis Natterer (Trichechidae), Nasua nasua Hagman (Procyonidae), Mazama cf. gouazoubira G. Fisher (Cervidae), and Coendou cf. prehensilis Linnaeus (Erethizontidae) for treatment of diseases like rheumatism, insect bites, sprains, impotence, bronchitis, and asthma.

Use of animal and animal products (both animal and bird species) have also been reported to be used by the inhabitants surrounding the Ranthambhore National Park in India, where the use of fifteen animals and animal products including bird, turtle and mammalian species (both wild and domesticated) have been reported (Mahawar and Jaroli, 2006). The Saharia tribe of Rajasthan, India also reportedly uses fifteen animal species for treatment of various ailments like coughs, asthma, tuberculosis, paralysis, earache, herpes, weakness, and muscular pain (Mahawar and Jaroli, 2007). Folk veterinary uses of animal species have been reported for the district of Cubati, Paraíba State, Brazil (Barboza et al., 2007). The use of at least 584 animal species in traditional medicines of Latin America has been reviewed (Alves and Alves, 2011). Other uses of animal parts and products have been reported for the semi-arid region of northeastern Brazil (Alves et al., 2012); by the Shoka tribes of Pithoragarh District in Uttarakhand, India (Negi and Palyal, 2007); in rural areas of Nigeria (Adeola, 1992); in traditional medicines of Aquismon, San Luis Potosi, Mexico (Alonso-Castro et al., 2011); and in northeast Brazil (Alves, 2009). Some organs of the razor-billed curassow (Pauxi tuberosa Spix, Cracidae)
are used by a riverine community of the Oriental Amazonia in Brazil (Barros et al., 2011). The feather extract of another bird species, namely Payo cristatus is reportedly used for better management of snakebites in Indian traditional medicine (Murari et al., 2005). The use of dried meat and feathers of the Andean flicker bird (Colaptes rupicola) as a galactagogue has been reported from the Peruvian Andes (Froemming, 2006).

Fish species also form an important ingredient in traditional healing practices of many countries of the world. The use of fin-fishes have been reported from southwest Nigeria (Sowunmi, 2007), where the fish species included species from marine, fresh and brackish waters. Ethnomedicinal uses of fish, shellfish and other aquatic animals have been described for Bangladesh (Deb and Haque, 2011). Medicinal uses of animals have been reported among fishing communities in north and northeast Brazil (Alves and Rosa, 2007). The use of marine creatures like seahorse (Hippocampus reidi Ginsburg, Syngnathidae) and green turtle (Chelonia mydas Linnaeus, Cheloniidae) has also been described for fishing communities in northeast Brazil (Alves and Rosa, 2006). Taken together, it can be said that use of animals and animal products has since time immemorial and even now has constituted an important part of traditional healing practices throughout many communities of the world.

Of the many traditional medicinal systems of Bangladesh, folk medicinal practices play an important role in the primary health-care system of the country. Folk medicinal practitioners, otherwise known as Kavirajes or Vaidyas, primarily practice among the rural population of Bangladesh and use medicinal plants as the chief ingredient in their various formulations. However, during our extensive surveys among the folk and tribal medicinal practitioners of the country (Nawaz et al., 2009; Rahmatullah et al., 2009a-c; Chowdhury et al., 2010; Hasan et al., 2010; Hasson et al., 2010; Mollah et al., 2010a,b; Rahmatullah et al., 2010a-g; Akber et al., 2011; Biswas et al., 2011a-c; Haque et al., 2011; Islam et al., 2011; Jahan et al., 2011; Rahmatullah et al., 2011a,b; Sarker et al., 2011; Shaheen et al., 2011; Das et al., 2012; Hasan et al., 2012; Hasson et al., 2012; Khan et al., 2012; Rahmatullah et al., 2012a-d; Sarker et al., 2012), we have noted also the occasional use of animals and minerals in the formulations. Towards a fuller documentation of the folk medicinal practices of the country, it is important to document the nature of all ingredients used in the formulations, including animals (by which is meant not only animals but covers the full range from insects, worms, fish, other aquatic species along with animals). The objective of this present study was to conduct an ethnomedical survey among three selected Kavirajes in three districts of Bangladesh to document their use of animal species in their medicinal formulations.

Materials and Methods

The present study was conducted among three folk medicinal practitioners practicing in Ashuganj town (Brahmanbaria district), Torowa mazar village (Narsingdi district), and Baya village (Rajshahi district). The folk medicinal practitioners were selected after a preliminary survey in the afore-mentioned three districts on the availability of folk medicinal practitioners who, besides medicinal plants, also used animals and animal products in their formulations. The three folk medicinal practitioners were, respectively, named Jakir Mowlana (Brahmanbaria district), Shah Alam Miah (Narsingdi district), and Wahab Miah (Rajshahi district). Informed consent was initially obtained from all three practitioners to interview them. The purpose of our visit was explained to the practitioners and consent obtained to disseminate any obtained information in national and international publications. The various animals (including also bird, insect, and worm and turtle species) were identified with the help of competent zoological authorities at Dhaka Zoo, Bangladesh and the University of Development Alternative.

Results and Discussion

The three practitioners between themselves were observed to use thirteen species of animals including turtle, insect, mammals, bird, leech, crab, and earthworm in their various formulations. A notable feature was that the animal parts were used by themselves without any accompanying medicinal plant formulations, except for one formulation, where the hair of the Black Bengal goat was used along with seeds of the plant Moringa oleifera for treatment of epilepsy. The various animal parts or whole animals were used for treatment of a number of ailments, which included asthma, insanity, being touched by ‘evil wind’, to increase sexuality in males, epilepsy, as female contraceptive, eye disorder, mental disorder, rheumatic pain, to improve health of weak children, any type of severe pain in body, and puerperal fever. In addition, turtle shell was used for treatment of infections in leg of cattle. The results are shown in Table 1.

The shell of the black pond turtle (Geoclemys hamiltonii) was used for treatment of infections on leg of cattle. Turtle shells or other parts have been reported to be used in zootherapy in other parts of the world. For instance, the shell of Geochelone carbonaria Spix (Testudinidae) is reportedly used in Bahia, Brazil for treatment of catarrh (Costa-Neto, 1999). Ash of carapace of the hard-shelled turtle Kachuga tentoria is used to treat lung diseases like coughs and asthma by the inhabitants surrounding the Ranthambhore National Park,
India (Mahawar and Jaroli, 2006). The Saharia tribe of Rajasthan, India uses the ash of carapace of the above-mentioned turtle for treatment of skin burns as well as lung diseases like coughs, asthma, and tuberculosis (Mahawar and Jaroli, 2007). The fat of a *Phrynops* spp. turtle is reportedly used for treatment of general wounds and swellings in the district of Cubati, Paraíba State, Brazil (Barboza et al., 2007).

The testicle of the domesticated bull (*Bos taurus indicus*) was used by the practitioners to increase sexuality in males. Whether, the swallowing of the bull testicle results in real increment in male sexuality or reflects a traditional concept that since the bull is a virile animal, swallowing of its testicle must lead to increase in human male sexuality is open to question. However, use of other cow parts or products is not uncommon elsewhere. The inhabitants surrounding the Ranthambhore National Park in India use the urine of cows (oral administration) for treatment of weakness arising from fever. They also use the dung and urine of cows mixed with milk (topical administration) to get relief from muscle pain (Mahawar and Jaroli, 2006). The butter of cow milk cream and butter of cow curdled milk cream is used in Paraíba State, Brazil for treatment of peri-ocular irritations (Barboza et al., 2007). In the semi-arid region of northeastern Brazil, the liver, horn, marrow, milk, urine, butter, and hoof proteins are utilized for treatment of a number of ailments including anemia, the evil eye, nervous problems, whooping coughs, weakness, eye problems, sore throat, baldness, and tuberculosis (Alves et al., 2012). Notably, the healers interviewed in Bangladesh used the horn of the Indian bison (*Bos gaurus*) for protection against the evil wind. Evil eye and evil wind are both considered real phenomenon by the Kavirajes and most rural inhabitants within the country, both supposedly resulting in sickness and eventually death. Whether such things exist or not is scientifically debatable; however, both concepts are deeply ingrained within the minds, particularly of the rural people.

Another domesticated animal, the Black Bengal goat (*Capra hircus*) was used by the practitioners. In one formulation, ashes from burnt down hair of the goat was mixed with seeds of *Moringa oleifera* for treatment of epilepsy (topical application). In the second formulation, burnt body hair of the goat was administered orally to females for contraceptive purposes. The inhabitants around the Ranthambhore National Park in India reportedly use goat urine (administered orally) as treatment for tuberculosis; goat milk is used to treat mouth ulcer (Mahawar and Jaroli, 2006). The Saharia tribe of Rajasthan, India orally administers goat urine as treatment of coughs and tuberculosis; and use goat leg bones for treatment of weakness (Mahawar and Jaroli, 2007). Fat obtained from castrated male goat is used in Paraíba State in Brazil for treatment of general wounds (Barboza et al., 2007).

The meat of the Bengal fox was advised to be cooked and eaten by the practitioners for alleviation of rheumatic pain. In Paraíba State, Brazil, the fat of a different species of fox, *Cerdocyon thous* is used for treatment of prolapse of uterus (Barboza et al., 2007). The leg bones and tooth of camel (*Camelus dromedarius*) was used, respectively, by the practitioners for treatment of eye disorder, and insanity and mental disorder. The Saharia tribe of Rajasthan, India uses the milk of camel as a massage cream for alleviation of muscular pain (Mahawar and Jaroli, 2007).

A crab, *Sartoriana spinigerä* was used by the folk medicinal practitioners to improve health of weak children. The Saharia tribe of Rajasthan, India uses the whole body of the crab, *Cancer pararus*, which is burnt to ashes and the ash used for treatment of coughs, asthma, and tuberculosis. Whole body of this crab is also reportedly used for jaundice and other liver disorders by tribes of Nagaland (Mahawar and Jaroli, 2007). The carapace of the ghost crab, *Ocypode quadrata* is also reportedly used by fishing communities in northeast Brazil for treatment of flu, asthma, and to alleviate the symptoms of intoxication (Alves and Rosa, 2006).

The meat of the house sparrow, *Passer domesticus*, was used by the practitioners for increase of sexuality in males. It is to be noted that sparrows are considered to be very active and ‘virile’ birds, the male sparrow being more so because of its constant flitting from place to place. As such, it is probably an ingrained belief that eating the meat of a male sparrow would increase male virility. However, the inhabitants surrounding the Ranthambhore National Park, India, are known to use the fecal matter of house sparrows to treat constipation in babies, where fecal matter is applied to anus of babies (Mahawar and Jaroli, 2006). The use of birds for zootherapeutic purposes is also present in other parts of the world. To cite just one instance, in Paraíba State, Brazil, fat from hens (*Gallus domesticus*) is used for treatment of mastitis and furunculosis, eggs are used for prolapsed of uterus, and feces are used for mastitis. Feathers of quail (*Nothura maculosa caerensis*) are used in the same State to treat snake bites (Barboza et al., 2007). Other instances of zootherapeutic uses of birds have been given in the Introduction.

It is always of scientific interest to determine whether zootherapy really has medical benefits or merely reflects the ingrained superstitions and customs which have continued to the present day from bygone ages. However, a recent paper has pointed out that the peacock feather water extract can inhibit phospholipase A2 enzyme activity from snake venom, the feather being used in the form of ash to treat snakebites in Indian traditional medicines for treatment of snake bites (Murari et al., 2005). Thus the possibility of scientific validation of the use of other animal species cannot be denied, and scientific experiments need to be conducted on various animal species used in traditional medicinal systems of the world. Such experiments not only could
form the basis of discovery of newer and effective drugs from various animal species, but also can spur conservation efforts to save these species.

Table 1: Zootherapeutic formulations of three folk medicinal practitioners of Bangladesh.

<table>
<thead>
<tr>
<th>Serial Number</th>
<th>Scientific and (English names)</th>
<th>Family Name</th>
<th>Local Name</th>
<th>Parts used</th>
<th>Disease, Symptoms, Formulations, and Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Geoclemys hamiltonii Gray Black pond turtle</td>
<td>Bataguridae</td>
<td>Kachim</td>
<td>Shell</td>
<td>Infections on leg of cattle. The shell of the turtle is powdered and mixed with coal powder and coconut oil and applied topically to the infected area.</td>
</tr>
<tr>
<td>2</td>
<td>Periplaneta americana Linn. American cockroach</td>
<td>Blattidae</td>
<td>Telachora, Telapoka</td>
<td>Whole insect</td>
<td>Asthma. Cockroaches are boiled in water and the water taken orally.</td>
</tr>
<tr>
<td>3</td>
<td>Bos gaurus Lambert</td>
<td>Bovidae</td>
<td>Indian bison, Gayal</td>
<td>Horn</td>
<td>Insanity, being touched by ‘evil wind’. Horns are cut and tied around the neck with a piece of string.</td>
</tr>
<tr>
<td>4</td>
<td>Bos taurus indicus Linn. Bull (Zebu breed)</td>
<td>Bovidae</td>
<td>Goru</td>
<td>Testicle</td>
<td>To increase sexuality in males. A testicle from bull is swallowed in the raw state in one breath.</td>
</tr>
<tr>
<td>5</td>
<td>Capra hircus Linn. Black Bengal goat</td>
<td>Bovidae</td>
<td>Deshi chagol</td>
<td>Body hair</td>
<td>Epilepsy. Hair of the Black Bengal goat is burned to ashes. The ashes are mixed with seeds of the plant Moringa oleifera Lam. (Moringaceae) and applied to the body. Note that this does not totally cure epilepsy, but alleviates the disease to some extent.</td>
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<td></td>
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<td></td>
<td>Female contraceptive. The body hair of a male goat is burnt to ashes, which is then administered orally to women.</td>
</tr>
<tr>
<td>6</td>
<td>Camelus dromedarius Linn. Camel</td>
<td>Camelidae</td>
<td>Oot</td>
<td>Leg bone, tooth</td>
<td>Eye disorder (when eye lids cannot be closed), insanity. Powdered leg bones are taken orally. Insanity, mental disorder. Powdered tooth of a camel is mixed with a little powdered coal and a little water and orally taken.</td>
</tr>
<tr>
<td>7</td>
<td>Vulpes bengalensis LC Bengal fox</td>
<td>Canidae</td>
<td>Shiyal</td>
<td>Meat</td>
<td>Rheumatic pain. Meat of Bengal fox is cooked and eaten.</td>
</tr>
<tr>
<td>8</td>
<td>Corvus splendens Vieillot House crow</td>
<td>Corridae</td>
<td>Kak</td>
<td>Bone</td>
<td>Epilepsy. Bones of the house crow are powdered and applied as paste all over the body of an epileptic person. Note that epilepsy cannot be totally cured by this method but some of the symptoms are alleviated.</td>
</tr>
<tr>
<td>9</td>
<td>Sartoriana spinigera Wood-Mason Crab</td>
<td>Gecarcinucidae</td>
<td>Kakra</td>
<td>Whole crab</td>
<td>To improve health of weak children. Cleaned crabs are fried in oil and taken orally for one month.</td>
</tr>
<tr>
<td>10</td>
<td>Hirudinaria manilensis Lesson Leech</td>
<td>Hirudinidae</td>
<td>Boro joke</td>
<td>Whole insect</td>
<td>To increase sexuality in males. Oil obtained from the body of leech is applied to pubic area of males for a month.</td>
</tr>
<tr>
<td>11</td>
<td>Entyphoeus comilahmus Michaelson Earthworm</td>
<td>Octochaetidae</td>
<td>Jir</td>
<td>Whole worm</td>
<td>Any type of severe pain in the body. Earthworms are dug out from the soil, cleaned, mixed with spices (turmeric, ginger) and then fried in oil (mustard). The fried worms are then eaten.</td>
</tr>
<tr>
<td>12</td>
<td>Passer domesticus Linn. House sparrow</td>
<td>Passeridae</td>
<td>Chorui pakhi</td>
<td>Meat</td>
<td>To increase sexuality in males. Meat obtained from male house sparrows is cooked and eaten.</td>
</tr>
<tr>
<td>13</td>
<td>Amaurornis phoenicurus Pennant White-breasted water hen</td>
<td>Rallidae</td>
<td>Dahuk</td>
<td>Meat</td>
<td>Puerperal fever (symptoms: following childbirth, wasting away of mother’s body, loss of appetite and dizziness in mother). Meat of the bird is mixed with spices, fried in oil and eaten.</td>
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</tbody>
</table>
References


