



Animal Drugs Used by the Tribals of India: A Review

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ABSTRACT: India is gifted with immense faunal and floral diversity. The tribals who depend on plants and animals for their day to day life and health problems are the real custodians of the knowledge of medicinally important plants and animals. Most of the knowledge accumulated by the tribals on medicinal plants and animals is unknown to the scientific community. Most of the biodiversity also cited with tribals has either disappeared or is on the verge of extinction. Therefore, the immense concern of the scientific community is to document the therapeutic use of plants and animal species and to devise strategies to preserve and tap this rich knowledge in a more sustainable way for the benefit of mankind. This review article is for summarizing the therapeutic uses of animals and animal products.

Keywords: Tribals; Sustainable; Therapeutic; Biodiversity; Animals and Animal Products.

INTRODUCTION: There are evidences that human beings are familiar with use of animals and plants for food, cloth, medicines etc. since ancient times (Judith, 2005). The medicinal use of animals and animal derived products is known as zotherapy, which have always played a significant role in the healing practice, magic rituals and religions of indigenous and western societies all over the world (Angelletti et al., 1992; Rosner, 1992).

In the Ayurvedic literature, animals and their products have been mentioned in a very systematic way. The cow has been given a pivotal position in Ayurvedic medicine due to the great medicinal value of their products like milk, ghee, curd, urine and dung. Cow milk has great healing properties. Cow milk has been equated with 'amrita' and the mixture of the five products is considered useful for its cleansing properties of the raw material (herbs and minerals) in the preparation of drugs. Unani medicines have also made extensive use of drugs of animal origin.

The tribals of India use wide varieties of medicines derived from both vertebrate and invertebrate animals. The invertebrates are used as a whole while in case of vertebrates the body parts, tissues, exoskeleton, shell, flesh, fat, bones, gastrointestinal tracts etc. are used (Mahawar and Jaroli, 2006; Mahawar and Jaroli 2007; Negi and Palyal, 2007; Pradhan et al., 2014). Likewise animal products such as honey, milk, musk, anteler, spider net, fish scale, urine and feces are of vital importance in curing many diseases. The diseases known to be cured by tribal medicine of animal origin are

tuberculosis, rheumatic and joint pains, asthma, piles, pneumonia, night blindness, impotency, paralysis, weakness, cholera, body-ache etc. (Sinha and Sinha, 2001; Solavan et al., 2004).

USE OF DOMESTIC ANIMAL PRODUCTS IN ETHNOMEDICINE:

- **Cow (*Bos taurus*):** Cow dung is used by the tribals and traditional peoples of India in skin diseases and the urine is used to give strength in general weakness. Old cow ghee is massaged in chest to allay cough and asthma. Cow curd is very useful in keeping stomach in order because it contains huge amount of natural beneficial bacteria found in human intestine. Cow milk and urine are used in the treatment of epilepsy, insanity and other neurological conditions (Sinha and Sinha, 2001; Vyas et al., 2009). Milk, ghee and curd are good source of calcium, vitamin and energy (Misra and Subhas, 2014).
- **Camel (*Camelus dromedarius*):** Camel fat is massaged externally by the tribes of Rajasthan in rickets (Sinha and Sinha, 2001).
- **Goat (*Capra indica*):** Flesh is cooked and eaten. Milk is drunk to avoid weakness; goat urine is taken to cure paralysis, tuberculosis, asthma, skin diseases and stomachache (Jamir and Lal, 2005) and goat milk, externally used in eye troubles.
- **Sheep (*Ovis aries*):** Sheep milk is used orally in eye trouble by the ethnic people of Andhra Pra-

desh, Assam, Gujarat, Manipur and Meghalaya (Sinha and Sinha, 2001). Its milk rubbed on affected part in bone fracture (Vyas et al., 2009).

- **Buffalo (*Bos sp.*):** Ghee of buffalo is massaged and orally taken in rheumatic pains and injury by various tribes. Meat promotes strength and physique, ghee curd and milk is very important for vitamins (Misar and Subhas, 2014).
- **Pig (*Sus-crofa domestica*):** Pig fat is applied in paralysis, joint pains, burns and fractures (Bagde and Jain, 2013), meat is eaten for increasing immunity (Misar and Subhas, 2014).
- **Dog (*Canis lupus familiaris*):** Flesh soup improves health and cure fever (Misar and Subhas, 2014).
- **Rabbit (*Oryctolagus cuniculus*):** Blood is used to cure asthma (Misar and Subhas, 2014).

USE OF WILD ANIMAL PRODUCTS IN ETHNOMEDICINE:

- **Tiger (*Panthera tigris*) and leopard (*Panther pardus*):** Fat of these animals is used in rheumatism, joint and waist pains and in burns (Sinha and Sinha, 2001).
- **Monkey (*Macaca sps.*):** Meat of all monkey species is eaten by Naga tribes. It is general belief that monkey meat cures tuberculosis, stomach disorder and general weakness (Jamir and Lal, 2005).
- **Mongoose (*Herpestes edwardsii*):** Many tribes cut the penis of mongoose, roast and eat to overcome impotency (Sinha and Sinha, 2001), meat is cooked and eaten for joint pain (Misar and Subhas, 2014).
- **Bat (*Myotis lucifugus*):** Flesh is cooked and eaten for curing asthma, breathing trouble and night blindness and male impotency (Jamir and Lal, 2005).
- **Elephant (*Elephas maximus*):** Teeth and tusk are powdered and applied on skin to treat leucoderma, eczema and ringworm infections (Jamir and Lal, 2005).
- **Hare (*Lepus nigricollis*):** Liver is used in acidity and flesh of hare is roasted and taken in fever (Bagde and Jain, 2013) and also rubbed by tribes in chicken pox (Padmanabhan and Sujana, 2008).
- **Gangetic Dolphin (*Platanista gangetica*):** Dolphin oil is applied in rheumatic pain, muscle pain and sprain and the affected part exposed to sunlight.

- **Crow (*Corvus splendens*):** Meat is cooked in mustered oil and this oil is cooled and applied in leucoderma (Sinha and Sinha, 2001). Feces rubbed on tumour (Misar and Subhas, 2014).
- **Fox/Jackal (*Vulpes sps./Canis aureus*):** Eating flesh helps relieving cholera, asthma, tuberculosis and chest pain. Fat is applied to cope with body-ache, rheumatic pain and skin diseases (Jamir and Lal, 2005).
- **Bear (*Selenarctos sps.*):** Gall bladder and bile duct extracts are used for relieving stomach disorder. Fat is applied on joints to relieve rheumatic pain. Flesh and penis is cooked and eaten to avoid general weakness (Jamir and Lal, 2005).
- **Deer (*Cervus sps.*):** Bones are powdered and suspended in water to make drop for relieving ear-ache. It also relieves chest pain, rheumatic pain and fever. Leg soup facilitates delivery. Fat relieves pain associated with burn wounds and piles (Jamir and Lal, 2005).
- **Sambhar (*Cervus unicolor*):** Antler rubbed with water and pest is applied on chest in pneumonia (Bagade and Jain, 2013).
- **Musk Deer (*Moschus moschiferus*):** Musk obtained from the preputial follicles of musk deer is a cardiotoxic, expectorant, anti-inflammatory, anti-diarroedic, anti-emetic and deobstruent. It is used in whooping cough, asthma, epilepsy, jaundice, paralysis, sexual debility and venereal diseases (Sinha and Sinha, 2001).
- **Turtle (*Testudo elegans*):** Ash of eviscerated is used in healing of cancerous wounds, bone tuberculosis, dyspepsia and respiratory diseases (Sinha and Sinha, 2001).
- **Common Otter (*Lutra lutra*):** The dried secretion of common otter obtained from the perineal sac is anti-spasmodic, anti-inflammatory, anti-obtrusive, stomachic, expectorant, detoxicant, aphrodisiac and nervine tonic. It is used in rheumatism, paralysis, general debility and to improve eye sight (Sinha and Sinha, 2001; Padmanabhan and Sujana, 2008).

USE OF INSECTS AND WORMS IN ETHNOMEDICINE:

- **Wasp (*Vespula vulgaris*):** Wasp is ground with honey and salt and applied in rheumatic pains and leucoderma. Larva crushed live and applied to treat arthritis (Misar and Subhas, 2014).
- **Cochineal insect (*Mutilla occidentalis*):** Boiled, dried and powdered insects are used as sedative,

anti-spasmodic and antitussive agents (Sinha and Sinha, 2001; Dixit et al., 2010).

- **Leech (*Hirudinaria javanicus*):** Tribes of India boil leeches in sesame oil to produce a sexual stimulant for male organ (Misar and Subhas, 2014). Dried and pulverized leeches are used with honey in pharyngitis; with olive oil and vinegar in piles. A drug 'hirudin' has been isolated from leech has anti-coagulant properties and help prevent blood clotting in arteries. 'Hementin' from giant Amazon leech has also been found to dissolve blood clots in arteries (Sinha and Sinha, 2001). Leeches are also used in joint pains, skin and blood disorder (Khan, 2012).
- **Earthworms (*Pheretima posthuma*):** It is used as a powerful aphrodisiac. Dried worms are beneficial in healing wounds, chronic boils, piles, sore, chronic cough, diphtheria and in jaundice (Padmanabhan and Sujana, 2008), oil from the worms is used in hemiplegia, paralysis and muscular pains (Misar and Subhas, 2014). Eaten raw to serve as antidote in snake and spider bite (Jamir and Lal, 2005).
- **Silk Worms (*Bombyx mori*):** The worm and its cocoon is an important ingredient in Unani medicine. It is a cardio-tonic and has aphrodisiac properties. Its ash is used in digestive problems and in eye diseases (Misar and Subhas, 2014).
- **Cockroach (*Periplaneta americana*):** Ash of cockroach is used with honey for dyspnea, urinary obstruction and uterine colic. Eaten raw for asthma and tuberculosis (Jamir and Lal, 2005).
- **Blister Beetle (*Cathrasis sp.*):** Ash is used in spleen enlargement (Dixit et al., 2010).
- **Red Ant (*Solenopsis invicta*):** A paste made from ant is eaten as a remedy for myopia (Misar and Subhas, 2014).

EGGS OF ANIMALS AND BIRDS USED IN ETHNOMEDICINE: An important medicine 'Kustha' for leprosy is made by incinerating the egg shell of birds.

BONES AND TEETH OF ANIMAL USED IN ETHNOMEDICINE: Thoracic vertebrae and bone marrow of goat are used in preparation of drugs for tonsillitis, laryngitis and lymphatic ailments.

HORNS AND HOOFS OF ANIMAL USED IN ETHNOMEDICINE: Horns and hoofs of many domestic and wild animals are used in preparation of medicines for jaundice, diarrhoea and bleeding piles. Horns of antelope are made in to a calx and given in cough, pneumonia, asthma, diarrhoea, leucorrhoea,

intestinal ulcers, jaundice and chronic cystitis (Sinha and Sinha, 2001).

SECRETIONS AND EXCRETIONS OF ANIMAL USED IN ETHNOMEDICINE:

- **Bile:** Bile of several animals, reptiles, birds, mammals, fishes is used in eye diseases, toxic conditions and fevers.
- **Urine:** Urine of goat, sheep, ass, cow, elephant and camel is used to cure leprosy, dropsy, gonorrhoea, abdominal disorder and kidney diseases. Human urine has great antiseptic properties if taken regularly it can keep several diseases away.
- **Dung and excreta:** Excreta of several animals and birds are used by tribals externally in skin diseases. In naturopathy, by applying cow dongs paste several kinds of body tumors are being successfully treated.
- **Venom:** Tribes use snake venom (*Cobra snake (Naja naja)* in small doses to treat chronic pains, sciatica, leprosy and leucoderma (Dixit et al., 2010).
- **Gall Stones:** Gall stones formed in the gall bladder of cow and oxen are used in treatment of epilepsy, jaundice and infantile pneumonia.

MARINE ANIMAL PRODUCTS USED IN ETHNOMEDICINE:

- **Sponges (*Spongia officinalis*):** Sponges have been found to be anti-inflammatory, astringent, antidiarrhoeic, syptic, and anti-dysenteric (Sinha and Sinha, 2001).
- **Corals (*Corallium rubrum*):** Coral ashes are used for strengthening of gums and teeth; for the eye diseases and leprosy. It is also useful in epilepsy, insanity, heart palpitation, spleen enlargement, gastric disorder, renal calculi and piles (Sinha and Sinha, 2001).
- **Pearls (*Pinctade sp.*):** Pearls are very useful in diarrhoea, hepatic and renal disorders, leucorrhoea, haemorrhages, piles and leprosy (Sinha and Sinha, 2001).
- **Sea foam:** It is a calcareous casting from *Loligo* and *Sipea* spp. Pulverized foam is used as tooth powder, on scabies and inflammation (Sinha and Sinha, 2001).
- **Amber:** It is a product formed in the intestine of sperm whale (*Ambra grasea*) and found as floating mass in the sea. It is aphrodisiac, restorative and health tonic and used in asthma, cough, ano-

rexia, epilepsy, paralysis, dropsy and rheumatism (Sinha and Sinha, 2001).

In addition to above cuckoo in breathing problems, pigeon in paralysis, peacock in asthma and human urine is applied on eye injuries, also applied as anti-septic on fresh wounds. Milk is applied as eye drop to relieve eyeache (Vyas et al., 2009). Tribes of Malwa also utilize fats of pig, tiger and wild boar in rheumatic and other muscular pains (Azmi and Bharti, 2013). A total of 26 ethnomedicinal animals and animal products are used by the tribes of Assam for the treatment of various ailments including asthma, jaundice, chicken pox, pneumonia, anemia, etc. Some protected wild species like the golden jackal (*Canis aureus*), rhino (*Rhinoceros unicornis*) and Indian crested porcupine (*Hystrix indica*) were also mentioned to have important medicinal uses. The highest percentage of animals used for traditional treatment is mammals (~34.62 %) followed by fishes (~30.77 %) and birds (~15.38 %) (Borah and Prasad, 2016).

Herpetofauna, (both amphibia and reptiles) were also the part of traditional medicines. A study shows that tribes of GHR use the body parts of 3 species of amphibia, 4 species of snakes, 4 species of lizards and 1 species of turtle as traditional medicine. The different parts used by them are blood, flesh, fats, carapace, skin and snake venom of different herps. They also use varieties of oils to cook the flesh and fats and honey to give sweet taste. The tribes of GHR use herpetofauna in different medicines for varieties of ailments like insect bite, tonsillitis, gastritis, rheumatism, eczema, body ache, tuberculosis, asthma, leucorrhoea, skin disease, snake bite, cold and flues, foot and mouth diseases in cattle, sciatica, leucoderma, leprosy, earache, growth of cattle, wound healing, curing impotency, eyesight problem, facilitates elimination of urine and stool, arthritis, cough and fever. Flesh of these animals act as tonic to improve vigour and cures wounds and relieve pain. The tribes of GHR consume the flesh of *Hoplobatrachus tigerinus*, *Varanus bengalensis* and *Lissemys punctata* regularly as food, so that the number of these animals is decreasing sharply (Pradhan et al., 2014).

A total of 46 animal species belonging to 8 taxonomic groups were documented to be used in traditional medicine by Malayalis in Pachamalai hills. Animal based medicines were prepared from whole animals or their body parts or products extracted from them such as: butter, meat, milk, bones, horn, musk, skin, fin, honey, mucus, eggs, urine, excreta, hair and legs. The most encountered taxonomic group was Mammalia having 14 species (Vijay Kumar et al., 2015). Studies at silent valley also showed that traditional healers

utilize a large number of animals for medicinal purpose (Vijay Kumar et al., 2015).

CONCLUSION: The use of wild animal products in traditional medicine has led to large scale killing of some rare and already endangered wild life species, threatening their extinction. Tiger, rhinoceros, musk, deer and bear are being exterminated and traded worldwide for traditional medicine at the cost of ecological balance. The claims made by these tribals should be tested for their validity using modern scientific techniques, if found untenable, the tribals should be educated about the endangered species and should be discouraged from using these animals for medicinal purposes. So there is need of sustainable use and to find alternatives to these animal products which is already there in plants and they can be cultivated on large scale.

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