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# Ethnomammalogical uses among the people of Abbaspur, Azad Jammu and Kashmir, Pakistan

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**SUMMARY**

Ethnomammalogy is the study of human interaction with mammals. The mammals has direct and indirect benefits for human being. The direct benefits as; food, clothing material, medicines, product, shelter, etc. while, the indirect benefits as; important for ecosystem services as food chain. This research is important to conserve mammalian species as well as cultural uses of mammalian species i.e. entertainment, supersitious, product use, medicinal uses. Present study is planned to know the cultural and medicinal applications of mammalian species in Abbaspur, Azad Jammu and Kashmir, Pakistan. During the research noted that 9 species of mammal are used in cultural as well as medicinal purposes. During the present study noted that hairs, meats and fats are used to cure different diseases as; boil, ptosis, protein, asthma, backbone pain and male power. All the species have the zero Similarity Index (i.e. Asiatic jackal, cape hare, Himalayan palm civet, Indian barking beer, Indian crested porcupine, red fox, rhesus macaque and small Kashmir flying squirrel) while small Indian mongoose (SIM) has 0.2 Similarity Index.

**Keywords:** Ethnomammalogy, Ethnopharmacology, Kashmir, Diseases

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## INTRODUCTION

Ethnomammalogy is the study of human interaction with mammalian species (Alves and Souto, 2015). The mammals have direct and indirect benefits for human beings. While direct benefits are as clothing material, food, medications, products, shelter, etc. (Diamond and Filion, 1987; Sibley and Monroe Jr, 1993; Mols and Visser, 2007; Altaf et al., 2017), while the indirect benefits include their importance for ecosystem services such as the food chain (Assessment, 2005). Many mammalian species are important as seed dispersers, pollinators, recyclers of nutrients, and maintainers of ecosystems (Heine and Speir, 1989). Mammals are important to the environment, just like other wildlife; they are good indicators and help to sustain, conserve, and maintain the landscape (Myers, 1990; Myers et al., 2000). This research is important for conserving mammalian species as well as the cultural uses of mammalian species, i.e., entertainment, magic, food, product use, and medicinal uses (Altaf et al., 2017).

Traditional medicines used on mammalian products are highly important to worldwide human health, besides a lot of taxa are traded worldwide for cultural uses, i.e., medicinal and product use (Alves and Rosa, 2007; Alves et al., 2007; Alves et al.,

2009; Alves et al., 2010a). Ethno-mammalogy studies create awareness about mammalian species' cultural, especially medicinal, uses (Alves and Rosa, 2007; Arshad et al., 2014). It is noted that traditional ethnomedicinal knowledge of flora and fauna is valuable for the conservation and restoration of wildlife. The traditional product-selling markets, where medicine traders operate, represent significant sales points for mammalian species. The information obtained for importing and exporting fauna and flora in such markets is important to policymakers and conservation managers. However, pharmaceutical applications of mammalian species have been reported before in countryside zones (Aikins, 2005; Kang et al., 2003; Smitherman et al., 2005; Whiting et al., 2013), but there is limited information on traditional medicinal applications of wild animals and plants in urban communities (Waldram et al., 2000; Alves and Rosa, 2007; Alves et al., 2007; Altaf, 2016; Altaf et al., 2017).

Increasing demand for wild flora and fauna, with many species used for medicine and drug formation in pharmaceutical industries, has cultural, social, ecological, and public health implications linked with wild animal usage. Data is available about animal species used for medicinal purposes and the socio-cultural perspectives linked with their utilization; there is a need for planning the protection, conservation, andmaintenance of wildlife, as noted by Alves et al. (2007). Illegal hunting and ethnomedicinal uses have negative impacts on mammalian diversity and population. This research is consequently designed to know the cultural as well as medicinal applications of mammals' species in Abbaspur, Azad Jammu and Kashmir, Pakistan.

## MATERIALS AND METHODS

### STUDY AREA

Abbaspur is a tehsil located near the Line of Control that divides Pakistan-administered Kashmir from Indian-administered Kashmir. Tangyran refers to the mountain just in front of the city, which extends to Mehmood Gali. Abbaspur is the sub-divisional headquarters of Poonch District in Rawalakot, Azad Kashmir (Figure 1).

### ASSESSMENT OF ETHNO-MAMMALOGY STUDY

Field surveys were conducted from February 2017 to January 2020. Questionnaires were used to collect ethno-mammalogical data. One hundred and nine informants were selected based on their knowledge of the cultural and medicinal aspects of mammalian species. Information on the medicinal use and cultural significance of each species was gathered. For the identification of mammalian species, the field book "Mammals of Pakistan" and guides were also used (Roberts, 1997; Roberts, 2005 a, b).

#### *Frequency of Citation (FC)*

The calculated Frequency of Citation (FC) value reflects the significance of each plant species to the local population. FC represents the number of local participants who mentioned the ethnomedicinal uses of each species.

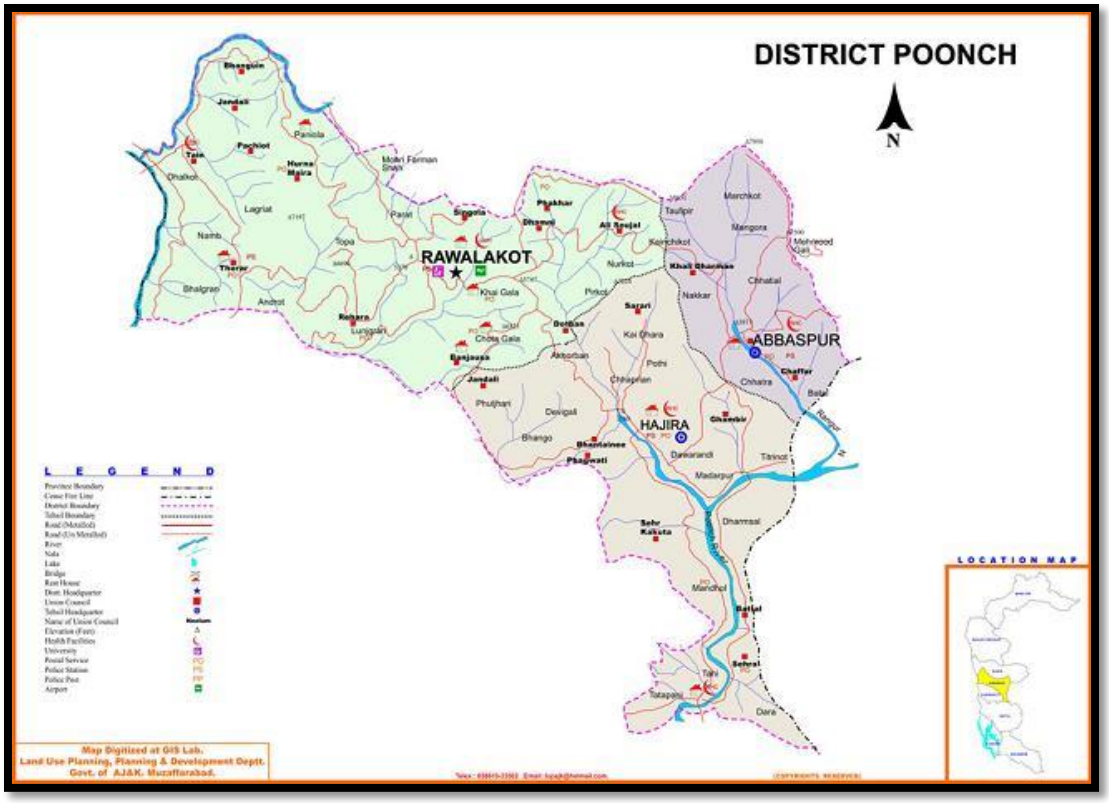


**Figure 1: The map of the study area.**

***Similarity index (SI)***

SI was calculated by using formula:

$$SI = M_s/M_t \qquad (0 \leq SI \leq 1)$$

Ms = The number of therapeutic uses recorded in both current and past documentation for a specific taxa.

Mt = The total number of therapeutic uses found in both current and past documentation for a specific taxa.

***Frequency of Citation (FC)***

Statiscal analysis was done with the help of Past Statitical Software (Version 4.0) and MS Excel 10.

## RESULTS AND DISCUSSION

Data were collected from Muslim male and female respondents. Most of them were well-educated. Casts of respondents from the study area are as follows: Sudhan, Qureshi, Mughal, Khawaja, Chaudhary, Awan, and Minhas. Data collected from the different villages in the study area are as follows: Chatra, Daryan, Bhangwal, Srari (24), and Abbaspur. The people of the study area ranged in age from 18 to 70 years old (Figure 2).

The research identified that nine species of mammals are utilized for both cultural and medicinal purposes. Out of these, two species are associated with superstitions among the local population. The Indian crested porcupine is believed to

incite conflict among native people if it is present in their homes, while the voice of the Bengal fox is regarded as a sign of impending death.

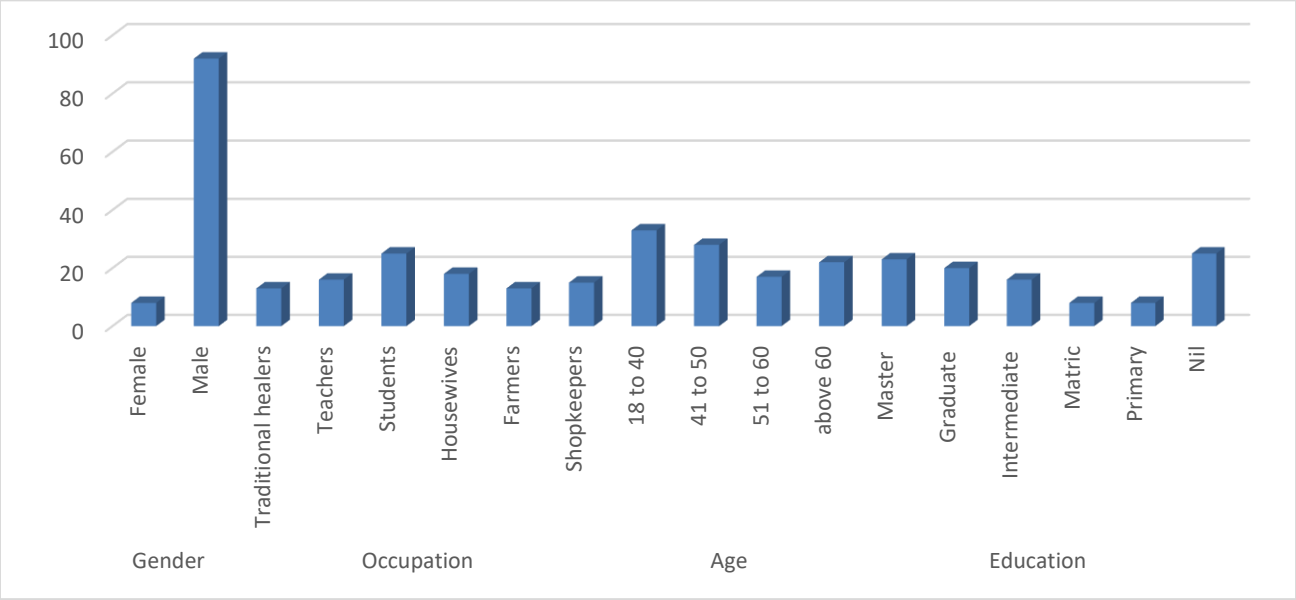


**Figure 2: The respondents' profile of the study area.**

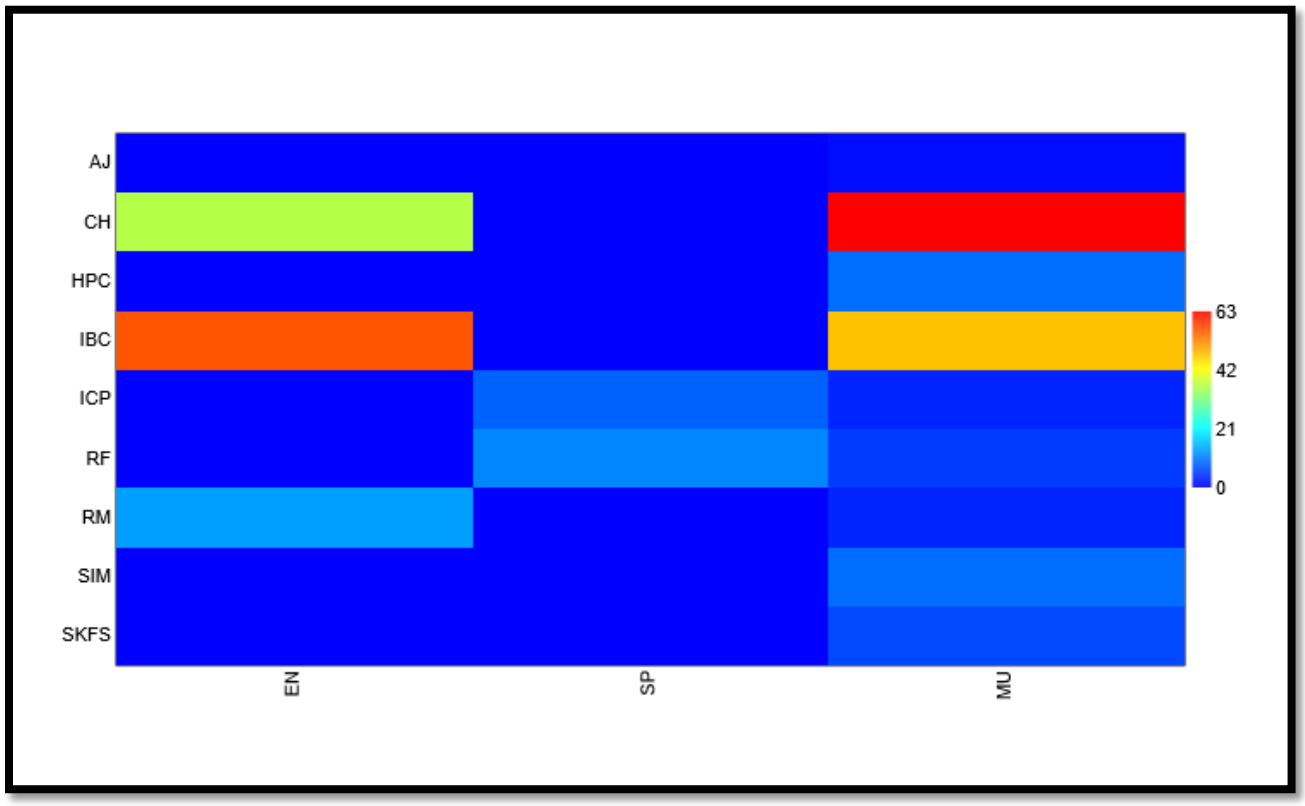


**Figure 3: Figure showing the cultural value of mammalian species in the study area (Note codes are present in Table 1, while EN=Entertainment, SP=Superstitious and MU=Medicinal use).**

**Table 1: Medicinal uses of mammals in the study area.**

| Common name (Code) Scientific name (Species authority) | Medicinal use | Frequency of citation | Diseases | References | SI |
|---|---|---|---|---|---|
| Asiatic Jackal (AJ) *Canus aureus* Linnaeus, 1758 | Hair ash and vinegar of this species is used to treat boil. | 1 | Asthma, sciatica, arthritis, gout, paralysis, sciatica, arthritis, body pain. | (Benarjee et al., 2010; Chakravorty et al., 2011; Betlu, 2013; Chinlampianga et al., 2013; Paudyal and Singh, 2014; Altaf et al., 2017) | 0 |
| Cape hare (CH) *Lepus capensis* Linnaeus, 1758 | Hair ash and vinegar of this species is used to treat boil; and meat is used to enhance protein in body. | 63 | Asthma, pox, paralysis, joint pain, stomach, wheezing, tonic, chicken BP and burning. | Dixit et al., 2010; Lohani, 2010, 2011a, b; Chinlampianga et al., 2013; Vijayakumar et al., 2015a, b; Altaf et al., 2017) | 0 |
| Himalayan Palm civet (HPC) *Paguma larvata* (Smith, 1827) | Hair ash and vinegar of this species is used to treat boil. | 9 | | | 0 |
| Indian Barking Deer (IBD) *Muntiacus muntjak* (Zimmermann, 1780) | Meat is used orally to treat paralysis, ptosis and to enhance protein in body; and hair ash and vinegar of this species is used to treat boil. | 47 | | | 0 |
| Indian Crested Porcupine (ICP) *Hystrix indica* Kerr, 1792 | Hair ash and vinegar of this species is used to treat boil; and meat is used to enhance protein in body. | 3 | Rheumatic pain, colic, weakness, boiled, skin infection, muscle fatigue, mouth disease and premenstrual pain | (Lohani, 2010, 2011b; Mishra et al., 2011; Betlu, 2013; Galave et al., 2013; Aloufi and Eid, 2016; Altaf et al., 2017; Borah and Prasad, 2017) | 0 |
| Red Fox (RF) *Vulpes vulpes* (Linnaeus, 1758) | Hair ash and vinegar of this species is used to treat boil | 5 | | | 0 |
| Rhesus Macaque (RM) *Macaca mulatta* (Zimmermann, 1780) | Hair ash and vinegar of this species is used to treat boil and meat for asthma | 3 | | | 0 |
| Small Indian Mongoose (SIM) *Herpestes javanicus* (É. Geoffroy Saint-Hilaire, 1818) | Hair ash and vinegar of this species is used to treat boil; fat is used against backbone pain and | 9 | Sexual power, impotence by males | (Chakravorty et al., 2011; Altaf et al., 2017) | 0.2 |

| | | | |
|---|---|---|---|
| | male power. | | |
| Small Kashmir Flying Squirrel (SKFS) *Eoglaucomys fimbriatus* (Gray, 1837) | Hair ash and vinegar of this species is used to treat boil; and meat is used to enhance protein in body. | 6 | 0 |

Additionally, the study found that only three species are used for entertainment. The local people hunt the cape hare and Indian barking deer primarily for food, whereas the Rhesus macaque is kept for performance tricks (Figure 3). During the present study, it was noted that 9 mammals are used for different medicinal purposes. It was observed that hairs, meats, and fats (Figure 4) are used to cure various diseases such as boils, ptosis, protein deficiency, asthma, back pain, and male potency (Figure 5). This is consistent with findings by other researchers (Qureshi, 2013; Kim and Song, 2014; Altaf et al., 2018; Bashir et al., 2021; Adil et al., 2022; Faiz et al., 2022; Altaf and Khichi, 2023; Hussain and Altaf, 2023).

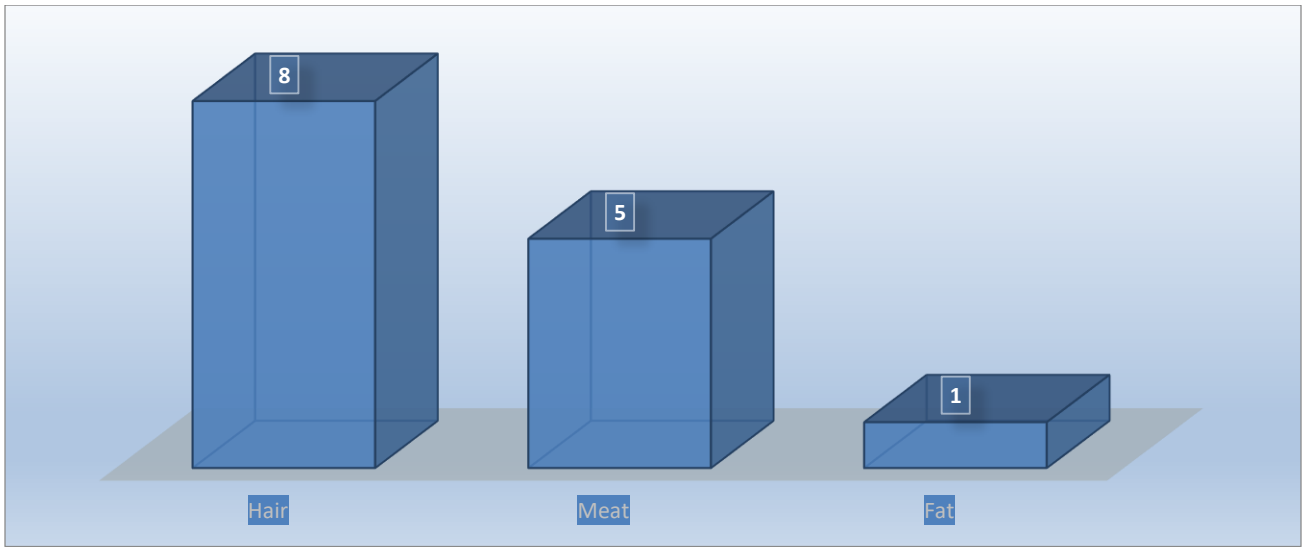


**Figure 4: Body parts of mammalian species used as medicines in study area.**

Asiatic Jackal hair-ash, and vinegar of this species are used to treat boils (Table 1) and have previously been documented for asthma, sciatica, arthritis, gout, paralysis, and body pain (Benarjee et al., 2010; Chakravorty et al., 2011; Lohani, 2011b, a; Betlu, 2013; Chinlampianga et al., 2013; Paudyal and Singh, 2014; Vijayakumar et al., 2015b; Altaf et al., 2017).

Inhabitants of the study area use fat and meat to treat various ailments, including skin diseases, joint pain, burns, body swelling, and to enhance sexual performance. The omega-3 fatty acids found in fat, known for their anti-inflammatory properties, may play a role in treating these human conditions (Wilson, 2015). Additionally, omega-3s are beneficial for neurological disorders, atherosclerosis, thrombotic conditions, and the effects of aging (Breteler, 2000; Kalmijn, 2000; Haag, 2003). This therapeutic potential may also stem from the high levels of lipids,

minerals, proteins, and vitamins in milk, which help strengthen the body, alleviate joint pain, and boost sexual potency (Hemme et al., 2010; Alabdulkarim, 2012; Sabahelkhier et al., 2012; Contarini and Povolo, 2013; Vats and Thomas, 2015).

During the present study, it was noted that hair ash and vinegar of cape here are used to treat boils, and meat is used to enhance protein in the body (Table 1) and has been previously documented as a tonic for stomach and asthma, joint pain, chicken pox, wheezing, BP, burning, and paralysis (Padmanabhan and Sujana, 2008; Dixit et al., 2010; Lohani, 2010, 2011a, b; Chinlampianga et al., 2013; Vijayakumar et al., 2015a; Vijayakumar et al., 2015b; Altaf et al., 2017).

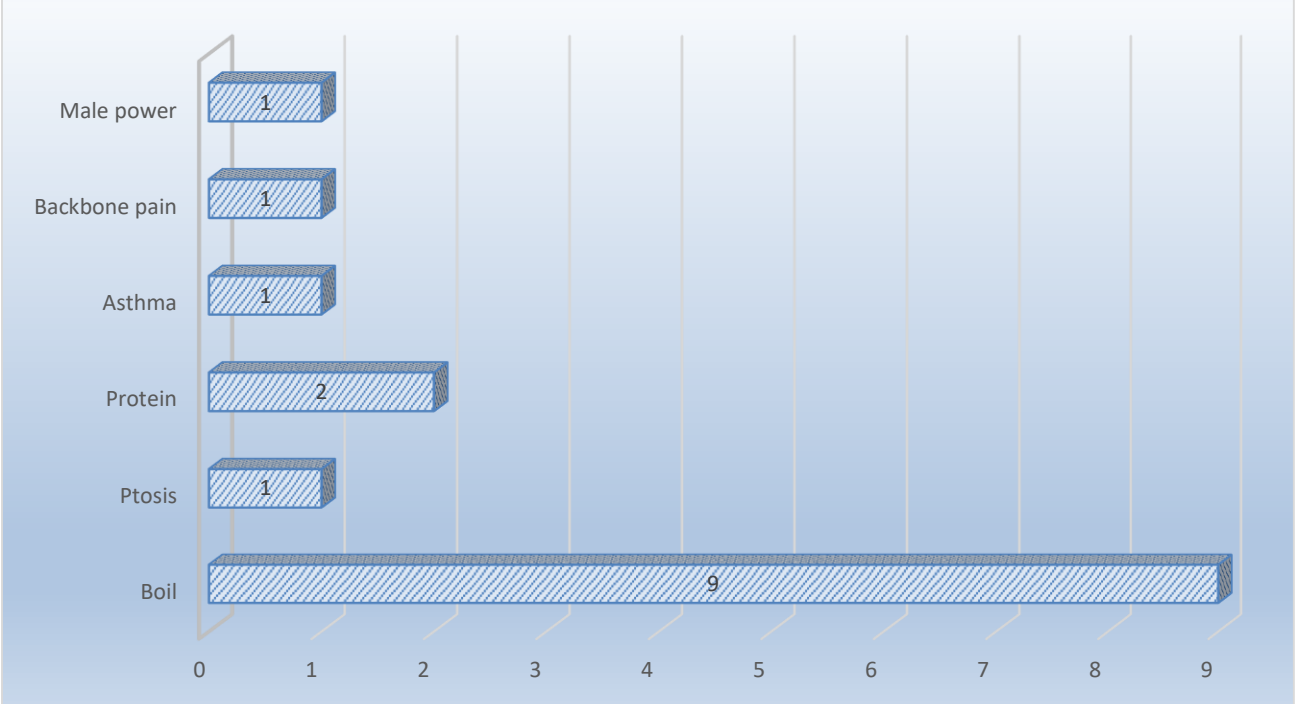


**Figure 5: Diseases cured from the different body parts of mammalian species used as medicines in study area.**

It is noted that hair ash and vinegar of the Indian crested porcupine are used to treat boils, and meat is used to enhance protein in the body and has been previously documented for rheumatic pain, muscle fatigue, premenstrual pain, skin infection and weakness (Lohani, 2010, 2011b; Mishra et al., 2011; Bagde and Jain, 2013; Betlu, 2013; Galave et al., 2013; Aloufi and Eid, 2016; Altaf et al., 2017; Borah and Prasad, 2017). During the present study noted that hair-ash and vinegar of Small Indian Mongoose is used to treat boil; fat is used against backbone pain and male power and previously documented as Sexual power, impotence by males (Chakravorty et al., 2011; Altaf et al., 2017).

In the present study, we observed that the hair ash and vinegar of the Small Kashmir Flying Squirrel are used for treating boils, while its meat serves to enhance protein intake; this is recorded for the first time. Additionally, the hair ash and vinegar of the Rhesus Macaque, Himalayan Palm Civet, and Red Fox are also used to treat boils, marking their first documentation. Furthermore, the meat of the Indian

Barking Deer is utilized orally to address paralysis and ptosis, as well as to boost protein levels; the hair ash and vinegar from this species are similarly noted for treating boils for the first time (Table 1).

***Novelty***

All the species have the zero Similarity Index (i.e. Asiatic jackal, cape hare, Himalayan palm civet, Indian barking beer, Indian crested porcupine, red fox, rhesus macaque and small Kashmir flying squirrel) while Small Indian Mongoose (SIM) has 0.2 Similarity Index.

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