



**E-ISSN: 2320-7078**

**P-ISSN: 2349-6800**

JEZS 2018; 6(4): 1205-1208

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Received: 04-05-2018

Accepted: 07-06-2018

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## Awareness and adoption of indigenous technical knowledge in management of surgical conditions in livestock

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### Abstract

The present study was conducted in the Budgam and Ganderbal districts of the Central Kashmir and sampling was done from the two blocks from each district. A total of 120 respondents were interviewed based on snowball sampling technique. The farmers were found to adopt variety of the local plants, spices and age old techniques for managing various surgical conditions in animals. For treating wound and horn avulsion paste of salt and turmeric was used, Dandelion and Woods worm was used in strains and sprains, red clay and salt paste in treatment of abscess, kerosene and turpentine oil in case of maggots. The awareness of these ITKs was comparatively high among the people than the adoption. The cost of these ITKs was perceived to be low, healing was moderate and to prepare was perceived as easy by majority of respondents. The constraints faced by farmers in using the ITKs were less availability of raw materials, treatments based on hit and trail, decreasing faith on indigenous treatments etc. There is an urgent need to preserve the plants and other ingredients used as ITKs by providing adequate facilities for cultivation, preservation and utilization of ITKs.

**Keywords:** ITK, local herbs, surgical conditions, awareness, adoption

### 1. Introduction

Indigenous Technical Knowledge (ITK) also called as Traditional Knowledge (TK), Local Knowledge (LK), Indigenous Knowledge System (IKS), Farmers Wisdom or Farmers Knowledge and can be defined as the knowledge that an indigenous (local) community accumulates over generations of living in a particular environment. This traditional knowledge is based on the necessities, instinct, observation, trial and error and long experience of the indigenous societies of different regions <sup>[1]</sup>. For local communities, indigenous knowledge is considered as an un-separable part of their culture and history <sup>[2]</sup>. Modern medicine that was once thought to solve all the problems related to human and animal health is presently facing many challenges like side effects, drug resistance and has put its use under question mark <sup>[3]</sup>. The lack of research, documentation and preservation of indigenous technical knowledge (ITK) has an upper hand in masking the value of indigenous therapies <sup>[4]</sup>. Indigenous knowledge is imperative in keeping a healthy livestock and for economic benefits but is vulnerable to attrition if it is not recorded for storage and wider transmission <sup>[5, 6]</sup>.

### 2. Materials and Method

For the present study Central Kashmir area of the Jammu and Kashmir State consisting of three districts *viz.*, Budgam, Ganderbal and Srinagar was selected based on the evidence that farmers in this area are adopting ITKs in their day to day livestock rearing. From each district two blocks and from each block two villages were selected purposively for the study. Again from each village 15 respondents (at least rearing one livestock unit) were chosen by snowball sampling method to make a sample size of 180 respondents i.e. 60 respondents from each district. The blocks included Kangan and Wakura (Ganderbal), Harwan and Eidgah (Srinagar) and Chadora and Khanshab (Budgam). The snowball sampling was adapted to select the respondents of the study. The selected respondents were personally interviewed with the help of specially designed and pretested interview schedule. The ITKs regarding the most prevalent diseases were documented from the area. The constraints faced by the farmers in using the ITKs were also documented from the area.

### 3. Result and discussion

Various ITKs were practiced by livestock farmers of study area for treating the various surgical conditions in livestock.

#### 3.1 Indigenous Technical Knowledge used in surgical conditions by livestock farmers

##### 3.1.1 Wound

**3.1.1.1. Salt water and Turmeric / Haldi paste in fresh wound and Cauterization in chronic wounds:** In case of fresh wound the area of the wound is washed with plain water first and a paste of turmeric/*Haldi* is applied over it. This area is covered with a clean cloth for early healing. In chronic wounds cauterization is done with hot iron sickle over the affected area to prevent further spread of infection. Sometimes coal or *Surma* is also used.

**3.1.1.2. Mulberry leaves or Sumbloo herb paste:** The leaves of the Mulberry tree are grinded and paste is applied over the wound. Grinded root of herb Sumbloo (*Berberis lyceum*) is also applicable in treating the wound.

##### 3.1.1.3. Extract obtained by boiling Dupha/Thandijadi

The leaves of the Dupha/ Thandijadi (*Swertiapetiolata*) are boiled in water and the decantation is used first to wash the wound and these boiled leaves are grinded and paste is applied over the wounds to heal immediately.

Turmeric is most commonly used in treating the wound due to its antiseptic nature and is in agreement with the results documented by De Amantodu [7] and Meena *et al* [8] who found that the application of turmeric topically to wound areas heals the wound. In chronic wounds cauterization of the area is done to prevent the further infection of the wound and similar findings were revealed by Srivastava [9] along with application of the red hot iron over the chronic wounds having pus formation was reported to heal the wound.

##### 3.1.2 Sprains and strains

##### 3.1.2.1. Dandelion / Haandh or Artemisia / wormwood / Tethwan application

Leaves of Dandelion (*Taraxacum officinale*) or Wormwood (*Artemisia absinthium*) or Sui (*Urticadiocca*) are first grinded and turmeric and salt is added to it. This mixture is applied over the affected area and is covered with a clean cloth. This is kept for 2-3 days for effective recovery.

##### 3.1.2.2. Paste of fenugreek seeds and Gur

Thirty grams of fenugreek / Meethi (*Trigonella foenum-graecum*) seeds are grinded and 50 grams of Gur is mixed with it along with a little amount of water. This paste is applied over the affected area to subside the swelling.

##### 3.1.2.3. Fomentations and massage

Common salt water fomentation followed by massage with turmeric-oil paste or butter.

##### 3.1.2.4. Branding

Hot iron branding is done to the affected part of the animal i.e., hot iron sickle is applied over the swelled or dislocated part of the animal.

For treatment of sprains and strains the documented ingredients in present study include the application of dandelion, Artemisia, ghee, turmeric, hot water fomentations, fenugreek etc. These ingredients are believed to subside the swelling and fomentations help in pain management. The

results are similar to those found by Meena *et al* [8] who documented the application of turmeric paste while Patel *et al*. [10] and Das and Tripathi [11] documented the use of fomentations and ghee for the ailments of the skeletal system. The use of dandelion for the strength of the ligaments and bones is also documented by Khuroo *et al* [12] while hot water fomentations was reported by Akhoon [13] in his study.

##### 3.1.3 Abscess

##### 3.1.3.1. Paste of red clay and salt

A paste is made by mixing the red clay with the common salt and this paste is applied over the abscess until it ripens and pus comes out.

##### 3.1.3.2. Leaves of Garden patience/Abej or grapes leaves

Oil is applied over the leaves of raw grapes or garden patience/Abej (*Rumex patientia*) or kadam. After that these oil applied leaves are made warm and are kept over the abscess until it ripens.

##### 3.1.3.3. Walnut, mud from Chula and Gur

A mixture of the crushed walnut, mud scrapings from the Chula, Gur and soap powder is mixed and a paste is made from it. This paste is applied over the abscess for its early ripening.

##### 3.1.3.4. Burning of abscess boundaries

The boundary of the abscess is burned with a hot sickle or knife for its early ripening.

Red clay, salt, magnesium and leaves of garden patience, Kadam and grapes leaves were found to be used in case of the abscess. The ingredients in these items are probably believed to help somehow in ripening of the abscess. The anti-inflammatory and hygroscopic nature of the magnesium salt causes the shrinking of the tissue and hence helps in the abscess ripening. The use of salt and clay can be supported by the fact that it causes dehydration of abscess with increase in pressure that helps in ripening and release of pus.

##### 3.1.4. Maggot infested wound

##### 3.1.4.1. Kerosene or turpentine oil

Washing of the wound with saline water and then kerosene oil or turpentine oil is applied over the area. After few minutes the maggots start appearing out on surface and are removed manually and the wound is covered with a clean cloth or bandage.

##### 3.1.4.2. Extract of Woodworm (Artemisia absinthium)/or raw walnut kernels

The woodworm (*Artemisia absinthium*) leaves or the raw walnut kernels are grounded and either its paste or the extract obtained is applied over the wound to prevent its infestation by maggots.

##### 3.1.5. Eye affections

##### 3.1.5.1. Sindoor

In case of the corneal opacity 2-3 grams of Sindoor is sprinkled inside the eye to treat corneal opacity. The use of Sindoor, salt water, and fried salt in case of the eye ailments was used by the people of study areas also reported by Akhoon [13] as our present findings.

##### 3.1.5.2. Salt and mustard oil

Common salt is fried in mustard oil and the mixture is sieved

and 1 gram of this mixture is put inside the eye of the animal. The results are in partial agreement with findings of Patel *et al.* [10], who documented the use of salt and alum while Singh *et al.* [4] found the use of the salt solution in eye ailments in his study area.

### 3.1.6. Fracture

#### 3.1.6.1. Managing of fracture is done manually by the farmers

The external cover of the popular plant is cutted in a semicircular fashion or two wooden sticks are kept one on both sides of the fractured part and a cloth is applied over it to keep the part immobilized for 15-30 days in adult animals and 10-15 days for young animals. Along with it the boiled leaves of dandelion or Artemisia are also applied over this part.

### 3.1.7. Avulsion of horn

#### 3.1.7.1. Use of ash/ haldi and oil

In case of the avulsion of horn ash/ haldi and oil is applied over the wound.

### 3.2 Plants used by the livestock farmers

The indigenous plants, used for treatment has been shown in Fig 1-4.



Fig 1: Wormwood (*Artemisia absinthium*)



Fig 2: Dandelion (*Taraxacum officinale*)



Fig 3: Garden patience (*Rumex patentia*)



Fig 4: Walnut tree (*Juglans regia*)

### 3.3 Awareness and adoption of ITKs

The overall awareness and adoption of the ITKs used in case of the surgical conditions was found to be 74.88 and 48.11 percent respectively as shown in Table 1. Among the selected ITKs used in surgical conditions use of salt water and turmeric/ Haldi paste used for treatment of wound was having highest awareness and adoption while as use of Sindoor for treatment of the eye affections was having lowest awareness and adoption of 66.66 and 33.33 percent respectively (Table 1).

The overall results reveal that inspite high level of awareness, the adoption of these ITKs was comparatively lesser among the respondents of the study. This may be attributed to a number of reasons like non-availability of plants or ingredients in the village, indiscriminate harvesting of natural flora and fauna of the village, instability of indigenous preparations for longer durations, meager knowledge about cultivation of herbal flora in the villages, need of indigenous treatments to be given for longer duration, toxicity of ingredients and exact dose and dosage to be used.

Among the three selected districts Budgam was having highest awareness and adoption of the indigenous technical knowledge followed by Ganderbal and Srinagar. Many parts of Budgam district reported the inaccessible formal services so the farmers relied more on their own knowledge and wisdom for treatment of animals. The lower awareness and adoption among the farmers of Srinagar can be owed to nearness of city center, with adequate official checking. More or less similar findings were also reported by various workers [4, 14, 15-17] regarding the adoption of various ITKs in their respective areas.

**Table 1:** Awareness and adoption of the ITKs used in surgical conditions of the animals

Classification of ITKs	Surgical Condition	Selected ITKs	Awareness and adoption	Selected districts			Overall
				Ganderbal (n=60)	Srinagar (n=60)	Budgam (n=60)	
Curative ITKs	Wound	Salt water and Turmeric/ Haldi paste	Awareness	51 (85.00)	53 (88.33)	55 (91.66)	159 (88.33)
			Adoption	40 (66.66)	41 (68.33)	37 (61.66)	118 (65.55)
	Sprains and strains	Dandelion /Haandh or Artemisia/Wormwood	Awareness	42 (70.00)	40 (66.66)	38 (63.33)	120 (66.66)
			Adoption	28 (46.66)	25 (41.66)	27 (45.00)	60 (44.44)
	Abscess	Leaves of Garden patience/ Abej or grapes leaves	Awareness	44 (73.33)	36 (60)	50 (83.33)	130 (72.22)
			Adoption	35 (58.33)	28 (46.66)	32 (53.33)	95 (52.77)
	Maggot infestation	Kerosene or turpentine oil	Awareness	48 (60.00)	45 (75.00)	52 (86.66)	145 (80.55)
			Adoption	33 (55.00)	27 (45.00)	40 (66.66)	100 (55.55)
	Eye affections	Sindoor	Awareness	45 (75.00)	35 (58.33)	40 (66.66)	120 (66.66)
			Adoption	25(41.66)	15 (25.00)	20 (33.33)	60 (33.33)
Average percentage of the respondents			Awareness	76.66	70.23	78.33	74.88
			Adoption	53.66	45.33	52.00	48.11

Figures in the parenthesis indicate per cent

#### 4. Conclusion

The presence of huge variety of the ITKs used in the study area indicates the richness of the age old precious knowledge with its applicability. It forms an important part of the lives of farmers as majority of them resort to traditional medication on appearance of symptoms of a disease and the formal veterinary services are availed in case of absolute emergencies. There is an urgent need for integration of traditional practices with modern scientific knowledge so that the society in general and farming community in particular can make better use of ITKs to take best advantage.

#### 5. Acknowledgement

The authors are thankful to Field veterinarians and livestock farmers for providing necessary facilities to conduct the research work.

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