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BRIEF REPORT

Role of Indigenous Technical Knowledge (ITK's) in Growth and Production of Livestock Sector

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ABSTRACT

Livestock sector contributes a major share to the GDP from the overall agricultural GDP. Indigenous knowledge is the precious knowledge of the local people who take benefits from it in various aspects of day to day living including the rearing of the livestock. But the shift from the traditional to modern medicine in the post-independence India has led to negligence towards this unexplored field of knowledge. The documentation of ITKs can provide us huge benefits in conserving and preserving bio-diversity, increase in national economy, patenting of the indigenous preparations etc. ITKs are having various benefits over the allopathic medicines like availability of the raw materials, cost effectiveness, no side effects etc. The constraints faced by the people while using ITKs include the seasonal availability, longer duration in healing, based on hit and trail method, less availability of documented literature etc. Recently the research on indigenous practices has got momentum all over the world including India but the efforts are still in its early stages and only a little portion is documented till now. There is an immediate need to recognize the importance of ITKs and take serious steps for their documentation, preservation and validation.

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INTRODUCTION

From the advent of the human civilization humans are having an unbreakable bond with animals. It was only after 1980's that there started a recording of this association [1]. Livestock sector plays a great role in food and nutritional security and acts as a best insurance to the farmers at times of crop failures. Despite its important contribution in national economy this sector is facing many challenges like low productivity, prevalence of animal diseases, shortage of feed and fodder, inadequate infrastructure for marketing, processing and value addition, issues related to bio-security and sustainability, continuous decrease in indigenous or local genetic pool and also a drastic disappearance of the rich and precious indigenous knowledge [2]. Despite their great number and diversity, livestock are not utilized to their maximum potential due to farmer feeding limits breeding, health, and administration [3]. One of the basic and biggest obstacle in the sustainable growth and production of livestock sector is the prevalence of animal diseases. Despite the latest advancements in conventional veterinary medicine a large share of population in developing countries still rely on medicinal plants and traditional healing practices for daily healthcare needs of their animals [4]. There has been less reach out of the information from extension agencies to the livestock farmers that can be seen from the data that only 5% of farm households in India have access to information on livestock against 40.4% in crop farming [5]. For most of the livestock farmer's conventional veterinary inputs and services are not

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readily available and where ever available they are relatively expensive. Therefore they are only left with their indigenous knowledge and the traditional choices for livestock rearing. The indigenous knowledge is locally available, cost effective, socially compatible and economically sustainable with the belief among farmers that it is more ecacious [6,7].

Indigenous technical knowledge

The word 'indigenous' means native born originated or produced naturally in a country or in a specified area and the word 'knowledge' means assured belief, practical skill, that which is known learning enlightenment [8]. 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. It is a community based functional knowledge system developed, preserved and refined by generations of people through continuous interaction, observation and experimentation with their surrounding environment [9]. ITK is a significant part of rural people's lives, particularly in farming communities. Despite the latest technologies and breakthroughs, the farming community still has a deep belief in their traditional knowledge. However, as time passes, the younger generation is losing faith in ITK since scientific procedures are significantly more 'tried and true' in terms of believability [10]. The knowledge about ITKs is stored in the minds of the people and it is usually difficult to explore. This knowledge is mostly expressed in terms of myths, stories, songs, rituals, beliefs etc. and is shared verbally between the people of particular cultures. This traditional knowledge is based on the necessities, instinct, observation, trial and error and long experience of the indigenous societies of different regions [11]. In agriculture and allied sectors ITKs are mostly practiced in risk prone and far flung areas mostly by the small and marginal farmers. It is specifically concerned with actual application of the thinking of the local people in various operations of agriculture and livestock rearing. The indigenous practices are considered to be the holistic approach for livestock management methodologies adopted by non-literate cultures. For local communities indigenous knowledge is considered as an un-separable part of their culture and history [12].

Transition from ITK's to Modern medicine

India is having a rich heritage of the traditional health control methods and several treatment systems. After independence as the country shifted its focus from the indigenous to modern methods both in agriculture and veterinary sciences, the efforts of the government sector were more centered towards developing an allopathic based veterinary structure. The shift towards modern practices was the need of hour but in this course of time less attention

was given towards the indigenous technical knowledge its preservation and documentation. All this resulted in less awareness and more skepticism about ancient literature and ITKs among the main stakeholders associated with livestock production [13]. 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 usage under a question mark [14]. Giving a full time attention to conventional medicine and total negligence towards the traditional practices can prove disadvantageous to both the systems as the two complement each other. There is no doubt that the modern medicine has revolutionized the treatment aspect but the need of the hour is to take the traditional healing system along with it. From last few decades due to replacement of traditional practices with modern scientific practices both at national and international level majority of people begin to consider the traditional practices as ineffective and useless [15]. The modern scientific drugs though albeit provided the immediate gains and have numerous advantages over indigenous medicines but it in no way means that indigenous practices are altogether useless and unscientific. Most of the indigenous practices are having the scientific reasons for their working and the same needs to be explored for authentication and its validation. The lack of study, research, documentation and preservation of Indigenous Technical Knowledge (ITK) has an upper hand in masking the value of indigenous therapies [16]. By integrating the traditional and modern scientific knowledge a wider range of new ideas and practices can be generated for the betterment of mankind [17]. But this correlation and integration can only be achieved once documented information about the ITKs is available.

Use of ITK's for treatment of various reproductive ailments in Animals

Need of documentation of ITKs

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 [18]. There is continuous uprooting of the untapped resources from their native habitats due to social, economic and political factors that can lead to loss of the indigenous knowledge [19]. In order to ensure a more socially and ecologically sound approach to development it is necessary to understand, respect, value and utilize the indigenous knowledge systems [20]. This will provide a step ahead to maintain sustainability, conserve and utilize biodiversity, intellectual diversity and prevents the over exploitation of the single resource. The recognition, preservation and protection of the traditional knowledge can play a great role in safeguarding biodiversity, intellectual diversity and environment on one hand and will prevent the bio-piracy on other [21,22]. In order to utilize the richest resources of indigenous therapeutic knowledge for the

benefit of humans and animals, attention should be directed towards patenting of effective indigenous formulations [16]. Documentation of ITKs is critical since it will aid in the creation of a path toward sustainable development, safeguard intellectual property rights, and provide a detailed understanding of livestock [23]. Documentation of ITKs Will help to increase the livelihood of ITK holders who are mostly poor and belonging to neglected areas of the society and will also contribute towards improving the national economy. Documentation can provide an insight into livestock related social realities that generally go unnoticed thus acting as a guide in formulation and implementation of realistic extension education programs [24]. The integration and amalgamation of the ITKs with modern scientific drugs can only be possible.

Benefits of ITKs to livestock farmers

There is no issue regarding the availability of inputs used in ITK practices as they are the local resources that are easily available to the farmers. The economically backward farmers can easily afford them and by this way livestock rearing becomes easy for them. As the principle of the adaptability the ITKs are time tested and reliable to the farmers hence adaptable in local condition and socially acceptable. There is no threat of the side effects, withdrawal effects, presence of undesirable residues in the livestock products. As India has majority of small and marginal farmers who can't afford to pay for treatment of their animals, using ITKs does not costs them does not need a technically trained person.

Constraints faced while using ITKs

The main constraints faced by the livestock owners in using the ITKs are non-availability of round the year raw materials used in ITKs. ITKs take time in healing and bringing about desired results so are not a preferred choice for the acute and emergency cases [25]. There is not availability of enough documented literature to be consulted for usage, dosage and side effects if any. Since nowadays majority of farmers rear the cross bred animals on whom the ITKs are not giving very promising results and the high cost of these animals prevents the farmers from taking any risk in this regard. Farmers experienced challenges in using ITKs due to a lack of raw materials, treatments based on trial and error, and a loss of faith in indigenous therapies, among other things [23].

Initiatives taken for documentation of ITKs

Recently the research on indigenous practices has got momentum all over the world including India. An effort in this regard was made by World Health Organization (WHO) in 1970 by promotion of indigenous practices in industrial world [26]. Considering the importance of this knowledge and its documentation Centre of Indigenous Knowledge and Rural Development (CIKARD) was established in United States of America (USA) at IOWA University in 1987 and Office

of Alternative Medicine was (OAM) was established in 1992 under the National Institute of Health (NIH). A massive effort to document the ITKs available in all indigenous medicinal systems the department of Indian Systems of Medicine together with the CSIR has launched a massive effort for preparing a digital library (TKDL) where all the digital, oral information regarding ITKs will be accessed. To conserve and to get benefit of ITKs recognition of National Sui generis system was established. A beneficial set of activities were started by World Intellectual Property Organization (WIPO) in 1998 to protect the ITKs and find out their Intellectual Property (IP) aspects. These activities were started to benefit the holders and actual preservers of the ITKs from the IP system in order to ensure their overall development. One of the important issues raised during 4th World Trade Organization (WTO) Ministerial Meeting in Doha, 2001 was the need of amendments in the Trade Related Aspects of Intellectual Property Rights (TRAIP) Agreement that will open a way for the members to provide an application for a patent relating to biological materials or to Traditional Knowledge [22]. In India various NGO's like BAIF, Pune; Jagaran Vikas Kendra, Udaipur; ANTHRA, Pune; SALIHOTRA, M.P; Women's Organization for rural development (WORD), Ahmedabad and Grass Root Innovation Augmentation Network (GIAN), Gujarat are reported to be involved in documentation and validation of Indigenous Knowledge system [27]. In spite of all these efforts research in this field is still in its early stages and only a little portion is documented till now [24]. Despite acknowledgement of the important role indigenous knowledge plays in sustainable development many governments, donors, and NGOs appear to take little efforts towards this valuable resource. The recognition of indigenous knowledge often amounts to little more than lip service, seldom translating into action or funding [28].

Need of the hour

There is an urgent need for the collection and documentation of the ITKs prevalent in different niche areas of the country. The documentation will be of little use without further steps of validation, refinement and integration of these documented ITKs. The government and non-government organizations must work to preserve the plants (herbs) and techniques used as ITKs and provide facilities to farmers for cultivating the same. Government schemes and Research and Development (R&D) activities should reach the indigenous users and scientific rationale behind these indigenous technologies should be studied for patenting the same. Further it requires integration with modern scientific knowledge so that the scientific community and farmers can use them to take best advantage

CONCLUSION

The ITKs are the inheritance of any local community that practices it. The use of ITKs has decreased and has remained

confined to the small section of the tribals and pastoralists. With each passing of negligence a part of this treasure is getting buried under the name of modernization. There is an immediate need to recognize the importance of ITKs and take serious steps for documentation, preservation and validation of the same.

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