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Policy Article

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Plant Extracts: An Ethnomedical Approach to control Cattle ticks

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Abstract
Livestock is a significant industry in India that provides supplemental income to rural communities. Ticks and diseases transmitted by ticks are the main issue that affects livestock, which has an impact on productivity and causes financial loss for farmers. Usage of chemical acaricides is typically constrained by the development of acaricidal resistance, residual effects, and environmental pollution. A traditional method of controlling this infection is by using plant extracts, which are prepared from various parts of the plant and are proven to have specific phytochemical properties, environmental friendly and less chances of resistance. By taking advantage of this, plant extracts are used as a method of preventing the tick and its effects on livestock.

Introduction

In tropical countries such as India, tick-borne diseases are posing a major threat to the livestocks. This leads to a demand to develop a new economical technique for the control of ticks. Ticks are external, temporary and obligate parasites of vertebrate animals (birds, mammals and reptiles), which need to feed on blood in order to live. India is blessed with the world largest population of 192.52 million cattle. *Rhipicephalus microplus* and *Hyalomma anatolicum*, two of the 106 tick species identified from India, are the most common species and are in charge of having a significant negative economic influence on the cattle production system by lowering productivity and profitability. As a temporary solution, chemical acaricides are widely employed in tropical and subtropical areas to manage tick and tickborne diseases. However, ongoing acaricide use has resulted in harmful residues in cattle products, environmental pollution, and the emergence of acaricide-resistant tick populations. Acaricidal activity of crude extracts from different plants against ticks has been reported. The phytoextracts produce acaricidal properties through diverse mechanisms: killing adult ticks, reducing tick feeding, and inhibition of egg hatching, molting, fecundity, and viability of eggs.

Table No.1: Acaricidal activity

S.No	Plant	Plant part used	Reference
1	*Azadirachta indica*	Leaf, bark, seed	Srivastava *et al.,* 2008
2	*Calotropes gigantean*	Flowers	Marimuthu *et al.,* 2013
3	*Ricinus communis*	Leaf	Ghosh *et al.,* 2013
4	*Mangifera indica*	Bark	Srivastava *et al.,* 2008
5	*Pisidium guajava*	Leaf	Srivastava *et al.,* 2008
6	*Agremone Mexicana*	Whole plant	Ghosh *et al.,* 2015
7	*Baleria prionitis*	Whole plant	Ghosh *et al.,* 2015
8	*Citrus maxima*	Fruit	Ghosh *et al.,* 2015
9	*Datura metel*	Fruit	Ghosh *et al.,* 2015
10	*Ocimum sanctum*	Whole plant	Ghosh *et al.,* 2015
11	*Sphaeranthus indicus*	Whole plant	Ghosh *et al.,* 2015
12	*Tinospora cordifolia*	Stem	Ghosh *et al.,* 2015

Conclusion

Herbal extracts provide a number of benefits over chemical acaricides, including the fact that they are biodegradable, do not build up and pollute the environment, are less hazardous to the environment and are also less likely to lead to the development of tick resistance.

References

Ghosh, S., Tiwari, S. S., Kumar, B., Srivastava, S., Sharma, A. K., Kumar, S., ... & Rawat, A. K. S. (2015). Identification of potential plant extracts for anti-tick activity against acaricide resistant cattle ticks, Rhipicephalus (Boophilus) microplus (Acari: Ixodidae). *Experimental and Applied Acarology*, *66*, 159-171.

Ghosh, S., Tiwari, S. S., Srivastava, S., Sharma, A. K., Kumar, S., Ray, D. D., & Rawat, A. K. S. (2013). Acaricidal properties of Ricinus communis leaf extracts against organophosphate and pyrethroids resistant Rhipicephalus (Boophilus) microplus. *Veterinary Parasitology*, *192*(1-3), 259-267.

Marimuthu, S., Rahuman, A. A., Jayaseelan, C., Kirthi, A. V., Santhoshkumar, T., Velayutham, K., ... & Rao, K. V. B. (2013). Acaricidal activity of synthesized titanium dioxide nanoparticles using Calotropis gigantea against Rhipicephalus microplus and Haemaphysalis bispinosa. *Asian Pacific Journal of Tropical Medicine*, *6*(9), 682-688.

Srivastava, R., Ghosh, S., Mandal, D. B., Azhahianambi, P., Singhal, P. S., Pandey, N. N., & Swarup, D. (2008). Efficacy of Azadirachta indica extracts against Boophilus microplus. *Parasitology Research*, *104*, 149-153.