

## Homeopathy and Alternative Pharmacological Systems in Veterinary Medicine

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**Summary:** In veterinary medicine, homeopathy and other alternative pharmacological systems are being investigated as additional or alternative therapies. The ideas, therapeutic approaches, and clinical applications of homeopathy, herbal medicine, acupuncture, naturopathy and other integrative modalities utilized in animal health care are summarized in this chapter. The suggested methods of action, possible advantages in treating chronic, stress-related, metabolic and infectious diseases and the increasing interest of veterinarians and animal owners in natural and low-toxicity treatments are highlighted. The evaluation of benefits, drawbacks and safety of various modalities using the most recent data from experimental and clinical research has been carried out. There is a discussion of challenges which include standardization, legal regime and the need for complete scientific validation. There is a prospect that homeopathy and alternative pharmacological systems give beneficial substitutes that improve the health of animals while at the same time decreasing the harmful effects of synthetic medications.

**Keywords:** Homeopathy, Pharmacology and Therapeutics, Veterinary Science, Alternative medicine

### INTRODUCTION

Veterinary medicine is becoming more formidable by antimicrobial resistance, drug residues in food products that are animal derived, economic limitations and demand of consumer for worthwhile natural therapies. These concerns have given rise to heightened awareness of homeopathy and other alternative pharmacological systems as complementary strategies to animal healthcare. In spite of their popularity, especially in organic farming and pet animal practice, the scientific reliability of many alternative therapies is still unresolved. This chapter furnishes a structured, critical and commentative analysis of homeopathy and other alternative pharmacological systems in animal medicine, centered on authentication, standard, ethical considerations and their role within integrative veterinary practice (Hektoen, 2005).

### FOUNDATION OF HOMEOPATHY IN VETERINARY MEDICINE

Homeopathy, as a medical philosophy, emerged as a result of the work of the German physician Samuel Hahnemann in the late 1700s. Hahnemann was disappointed by the torturous treatment practices of his time which included bloodletting, purging and the use of mercury in poisonous quantities and proposed a gentler, more natural method of healing. He established the idea of "Similia similibus curentur" or "like cures like," which proposed that if a drug that can produce symptoms in a healthy person was administered in very diluted doses, it may treat similar symptoms in a sick person (Ernst, 2002). Although being conceptualized for humans initially, use of homeopathy in animals was followed later. Early experiments were done with homeopathic preparations on

cattle, horses, sheep and dogs by early veterinarians and stock keepers especially in Europe. In the 19<sup>th</sup> century, veterinary schools in Germany, France, and the United Kingdom began to investigate the possibilities in treating agricultural animals due to its low cost, accessibility and perceived safety when compared to chemical medications (Hektoen, 2005).

By the mid-twentieth century, homeopathy was incorporated into organic and sustainable farming practices across many parts of Europe. Farmers who sought to reduce their reliance on antibiotics and chemicals welcomed homeopathy. In India and across other parts of Asia, homeopathy within veterinary treatment, combined with existing traditions of Ayurveda and Siddha medicine bring about a hybrid animal-care system (India, 2011). Still today Homeopathy is controversial, though it is still approved by practitioners and pet owners who look for natural or integrative medicine. This tenacity highlights passion for health sciences as well as cultural, economic and ethical considerations in animal care.

### Core Principles

There are three core principles of homeopathy. The idea that chemicals that produce certain symptoms in a healthy organism might reduce those symptoms when given in a very diluted form. For example, onions cause tears in the eyes and irritation of the nose in humans and as a consequence diluted preparation of *Allium cepa* (onion) is commonly used for comparable allergic reactions in homeopathy (Vickers & Zollman, 1999). Then there is a serial dilution and vigorous shaking process that are utilised to make homeopathic cures. There may be no trace of the original material in certain dilutions but claims are made by practitioners that the process

leaves an "energetic imprint" that activates the self-healing capabilities of the body (Xie & Eckermann-Ross, 2012).

Conventional animal pharmacology regularly suggest standardised doses whereas, homeopathy focuses on therapies that are personalized to each symptoms that are animal specific, their temperament and overall health. For example, two cows suffering from mastitis may get different treatments which depend on whether their symptoms are acute, persistent or are along with some behavioural abnormalities (Xie and Eckermann-Ross, 2012). This develops a comprehensive framework for veterinarians in which the goal is to reinstate equilibrium within the body of animals instead of just attenuate symptoms.

### Alternative Pharmacological Systems Beyond Homeopathy

Among several alternative systems in veterinary medicine, homeopathy is the most popular. Ayurveda which was originated in India and it points out equilibrium between three doshas (vata, pitta, and kapha). Ayurvedic herbs, in veterinary medicine like Ashwagandha and Neem are employed to treat immunity, parasitic infections and skin diseases in cattle, goats and poultry (Latheef et al., 2013; Silver, 2006).

Traditional Chinese Veterinary Medicine (TCVM) is based on the principle of yin-yang balance and meridian energy flow. It includes acupuncture, herbal formulations, and nutritional therapy. It has been used to cure muscular and skeletal abnormalities in horses, chronic skin infections in dogs and reproductive issues in animals (Xie & Preast, 2013). Phytopharmacology has firm basis in traditional practices as well as formalised systems (Lans et al., 2007). Some of the plants are chamomile, turmeric, garlic and Echinacea. They are commonly used in cattle and companion animals (Franz et al., 2010). Nutraceuticals that is another classification of plants provide both therapeutic and dietary benefits (Dzanic, 2008).

There is a growing trend of employing acupuncture in veterinary physiotherapy to treat pain, neurological disorders and rehabilitation after injury in dogs and horses. To improve mobility in horses, chiropractic adjustments are also used by stable owners. These traditional pharmacological systems attract veterinarians and owners looking for complementary care which is frequently used in concomitantly with conventional therapy (Haussler, 2009). They provide a greater toolbox for treatment, although technical validation differs among systems (LoGiudice & Rivera, 2023).

### Modern Integrative Veterinary Medicine

The present veterinary environment is receding from regular cures and advancing towards alternative medicine. This approach embodies conventional methods that are based on evidence and when required combined with complementary or alternative therapies. Many methods in integrative medicine in the production of livestock, also including organic farming, focus on decreasing the use of antibiotic. The concentrate on boosting welfare of animal and meeting the demand of consumers for natural product. In the domain of companion animal, owners often go in for integral approaches in exploring

the quality of improvement of life, especially when dealing with diseases that rechronic or incurable (Hellec et al., 2021).

Evolution of veterinary schools and professional organizations is also happening. Many schools have made the alternative systems part of their curricula. Postgraduate training programs are educating the use of acupuncture, phytomedicine and homeopathy. However, regulatory systems are more cautious and embodies the American Veterinary Medical Association (2013) and the British Veterinary Association (BVA). They stress that strong scientific verification is necessary before certified recognition in Evidence Base and Research Landscape (Memon et al., 2021).

### CLINICAL APPLICATIONS AND VETERINARY PRACTICE

In a variety of veterinary hospitals or clinics, homeopathy and other alternative pharmacological systems have been studied. Mastitis, which is a major concern in dairy farming because it affects production of milk, welfare of animal and profitability of farm. Antibiotics continues to be the quintessential but the increase in resistance to antimicrobial has cued researchers and farmers to contemplate homeopathy as an alternative (Habacher et al., 2006). Some investigations reveal that the administration of *Phytolacca* or *Belladonna*, homeopathic preparations, resulted in higher counts of somatic cell and healing time were faster. However, another highly supervised studies have reported that there is no improvement contrary to placebo. That indicted the variability of the results. Organic farmers sometimes use homeopathy in combination with herbal medicines. It is as part of their strategy to minimize the presence of residues of antibiotic in milk (Mochahary, 2024).

There is a viral condition that causes growths in the mouth which are like warts. It is known as canine oral papillomatosis. This condition has also been investigated using homeopathy. There are some case reports point out that medicines such as *Thuja occidentalis* cause rapid decline of lesions. Randomised controlled trials, however, frequently disclose no significant difference when compared to spontaneous remission, which occurs in papillomatosis. This invites an inquiry, whether the developments that were detected are due to treatment or progression of natural illness (Raj et al., 2020). In calves and sheep, diarrhoea and bloating are common. Homeopathic cures are routinely prescribed for this, like *Nux vomica* and *Carbo vegetabilis*. Though studies it has been observed that calves that are treated with homeopathic treatments recover faster than controls without treatment (Camerlink et al., 2010).

Another serious concern include respiratory problems which prevail are in factory farming. Homeopathy has been evaluated in chickens for infectious bronchitis and repetitive blockage of airway in horses. Some assertions highlight decreased severity of symptom, however, independent studies usually fail to establish consistent benefits (Liu et al., 2025)

### Systematic Reviews and Meta-Analyses

Systematic investigation on homeopathy in veterinary medicine shows irregular pattern and inadequacy of method.

A systematic review of veterinary homeopathy found out that experiments of methodological quality are only few in number. Their results were variable (Mathie and Clausen, 2015). Updated analyses have demonstrated that positive discoveries are more expected to arise from trials with flaws in methodology. They may include absence of blinding, small numbers of sample or deficient control groups. In a nutshell, there are small number of studies that claim effectiveness. Their outcomes are inconsistent and the scientific data does not support clinical efficacy in broader range (Linde et al., 1997).

### Research Quality Concerns

Actual effectiveness of homeopathy in veterinary medicine is hard to evaluate because of number of reoccurring problems. Only a few dozen animals are involved in most experiments. Statistical validity and generalisability is reduced due to these small sample sizes (Mathie and Clausen, 2014). The animal owners and vets may consider benefits inadvertently or report biased results, while their animals are not expected to experience placebo effects in the human sense (Bergh et al., 2021). Homeopathic treatments are customised carefully for the individuals receiving it whereas conventional medicines are not. Or this reason it is difficult to standardise therapies for investigations (Mathie et al., 2014). Then there are some veterinary conditions such as oral papillomatosis or mild diarrhoea that recover spontaneously. This makes it difficult to differentiate therapeutic effects from natural healing. Mostly published content is based on positive outcomes, whereas adverse results go unpublished. This twists the views of efficacy (Mathie et al., 2017).

### Methodological Challenges in Veterinary Trials

Running randomised controlled trials (RCTs) of high quality in veterinary homeopathy is harder than in human medicine (Dean et al., 2007). One of the challenges include owner consent and bias. Owners who passionately believe in alternative medicine may unintentionally impact results. Another issue is variability in species. What works for one species (e.g., cattle) may not be applicable to another (Mathie et al., 2017). Then there are difficulties in blinding. In actuality, it is difficult to blind both veterinarians and owners to treatment, especially when the cures require specific handling (Giuffrida et al., 2012). Environmental factors such as feeding, hygiene, and management is another challenge that can skew cattle study results. Because of these limitations, RCTs' internal validity is frequently questioned (Sargeant et al., 2023).

## THE DEBATE: SUPPORTERS VS. CRITICS

### Anecdotal successes vs. scientific skepticism

Survival of homeopathy and its attraction in veterinary care can be accredited largely to testimonials. Farmers, pet owners and several veterinarians have constantly reported favourable results. Farmers, when added homeopathy in the health regime of their animals, they reported lesser number of mastitis cases, rapid healing of skin lesions and greater overall animal strength. Pet owners frequently claim that they have noticed

improvements in the chronic problems of their dogs and cats. These issues included allergies, nervousness, or digestive troubles. Practitioners state that the prominent number of benefits claimed by farmers suggests that homeopathy should not be ignored even if outcomes of trial are not always reproducible. However, scientists point out success of therapy based on anecdotes from farmers is not as reliable as scientific validation (Yu et al., 2025). Many astonishing elements such as speedy recovery, changes in environment or prejudiced stated by observer can explain these findings (Mathie and Clausen, 2014).

Canine oral papillomatosis, for example, is usually cured without intervention of treatments, thus improvement which occurs after administration of homeopathic medicine may simply coincide with natural healing. Mastitis can be improved by adopting more cleanliness in milking, changing diet and reducing stress rather than the therapies. This tension underlines the knowledge gap between traditions of anecdotes and evidence-based medicine (Yu et al., 2025).

### Veterinary Organization's Positions

Veterinary societies, worldwide remarked the legitimacy of homeopathy, often reaching circumspect or negative results. In 2013, the American Veterinary Medical Association (AVMA), the representatives passed a motion declaring that the scientific evidence to support the efficacy of homeopathy in veterinary medicine is not enough. The AVMA highlighted that there is a need of validated medicine. It warned that using experimental treatments could cause harm to animal health. The British Veterinary Association (BVA) is against homeopathy and remarks that it has insufficient proof. In 2017, it supported efforts limiting veterinary surgeons from using homeopathic medicines instead of proven therapies in animal treatment (Bergh et al., 2021).

The Federation of Veterinarians of Europe (FVE) has emphasised that veterinarians must prioritise scientifically verified approaches. It has also expressed concerns that depending on homeopathy put animal welfare to harm by delaying effective treatments.

The European Medicines Agency (EMA), interestingly, monitor and approve some homeopathic veterinary products, although by simplified procedures for registration that do not need evidence of efficacy. This shows a political compromise by recognising demand while accepting scientific ambiguity (Šuran and Sindičić, 2012).

### Ethical and Regulatory Concerns

A variety of ethical concerns are posed by the use of homeopathy in animal. Animals cannot give their consent to treatment similar to how humans do. Critics argue that putting patients through experimental therapies is unethical, especially if it retards access to superior care. Supporters proclaim that if the therapy is safe and has ability of being helpful, it may ameliorate health (Howland, 2021). One captivating argument on the side of of veterinary homeopathy is its ability to reduce the use of antibiotic in animals, in this way averting resistance to antimicrobial. However, if homeopathy is not effective,

infections that are not treated may develop which may make it necessary to use intense antibiotic later (Howland, 2021). To attract consumers who desire natural products, homeopathy is utilised from time to time, as a marketing tool. Ethical difficulties arise when such claims are not backed up by strong evidence and there is a possibility of misleading the public. In many countries homeopathic treatments are sometimes subjected to less strict regulation than conventional medications. This leads to differences in quality control, labelling, and veterinarian liability. Some critics call for more firm standards, while advocates heed against excessive control, which could restrict therapeutic diversity (Howland, 2021).

### Case Studies: Antibiotic Reduction in Organic Farming

One of the most convincing reasons for veterinary homeopathy is its ability to reduce antibiotic dependency in organic and sustainable farming systems (Habacher et al., 2006). Homeopathy is commonly used to prevent and cure mastitis on organic farms throughout Europe. Surveys indicate that farmers believe it lessens their dependency on antibiotics, however scientific trials are divided. A Swiss study found that farms adopting homeopathy used somewhat less antibiotics, although the effect was statistically insignificant when confounders were addressed. Anecdotal findings from German farms indicated fewer clinical cases, but formal testing failed to demonstrate consistent decreases (Howland, 2021). Respiratory disorders are one of the chief reason of antibiotic use in poultry systems. To keep their flocks healthy, some farmers use homeopathy beside herbal medicines for the health of their flock. Once more the results are not consistent; some flocks reporting minor improvements but major experiments ending up with variable results. Organic consumers frequently support the use of homeopathy even without solid scientific evidence, regarding it as consistent with the principles of natural farming. This factor which is led by demand keeps the practice alive even when the evidence is unclear. These case studies show a practical dilemma while homeopathy is not scientifically accepted, its impact is notable in lowering the use of antibiotics both socially and economically.

### Counterarguments: Risks of Delaying Effective Treatment

There is grave concern among critics of veterinary homeopathy that if remedies without evidence are prioritised, animals may suffer from consequence which, on the hand, can be avoided. Delay in the use of traditional treatment can cause irreversible harm decreased productivity or even death. This may happen especially in acute illnesses which may include pneumonia, mastitis or parasitic infestations. If owners or veterinarians see improvement with homeopathy, they may limit the window for proper intervention into the disease which may deteriorate further (Lees et al., 2017). Ethically, veterinarians must act in the best interests of welfare of animals. In some dominions, veterinarians may bear legal consequences if animals' health suffer as a result of dependence on experimental treatments. These possibilities grow when regulatory authorities take more strict actions against homeopathy (Hernandez et al., 2018). Critics claim that the danger of harm exceeds the potential benefits which

are unsure, making homeopathy ethically undefendable as a replacement for proven treatments (Bergh et al., 2021).

### The Middle Ground: Integrative Veterinary Medicine

Some veterinarians consider the use of homeopathy and alternative pharmaceutical systems as supplementary instead of alternatives to each other. They believe in using them in situations where conventional options are limited (for example, chronic pain, behavioural difficulties, minor diseases). It must be ensured that when illnesses that are life threatening develop, conventional care remains the top priority. This integrative scheme targets to respect preferences of owner, meet demand of market and expand therapeutic options while maintaining animal welfare (Lees et al., 2017).

## ALTERNATIVE PHARMACOLOGICAL SYSTEMS BEYOND HOMEOPATHY

### Herbal Medicine in Veterinary Practice

Reaching back before present day pharmacology, herbal therapy is among the oldest medicinal treatments in animal health care. Many plants that were used in cattle and pet health long ago are still useful today, whether in folk medicine or current phytopharmacology. Herbs are mentioned as a treatment for diseases in animals in ancient Egyptian, Greek, and Indian scriptures. For a long period of time, farmers have trusted locally available plants like garlic against parasites, chamomile for stomach discomfort and willow bark to alleviate pain. Garlic, *Allium sativum*, is used for antiparasitic and antimicrobial actions in poultry and cattle. Turmeric, botanical name, *Curcuma longa* is applied in wound healing and for anti-inflammatory purposes in musculoskeletal disorders. Echinacea is an immunostimulant which is commonly used in dogs and horses. Chamomile, *Matricaria chamomilla*, has calming effects and it is used as support for gastrointestinal issues and for soothing properties for skin. Neem, *Azadirachta indica*, is largely employed in South Asia for controlling ticks, fleas and skin infections (Franz et al., 2010).

Some herbs, such as willow bark (a natural source of salicin, the precursor of aspirin), have prominent pharmacological properties (Lin et al., 2023). Others herbs like echinacea or garlic, produce variable results in controlled experiments. The chief challenge is standardization, as active chemical agents in herbs vary based on circumstances in which growth occur, harvesting time and methods and preparation procedures. Monitoring agencies need dose and toxicity data continuously, which are usually not available (Etaware et al., 2025).

### Essential Oils and Aromatherapy

Use of essential oils is increasing in veterinary practice, especially for pet animals and in livestock systems. **Lavender oil** promotes relaxation. It decreases anxiety in dogs and horses. Similarly, **tea tree oil** use as an antimicrobial for skin infections in very noteworthy (though toxicity may occur in cats). **Oregano oil** is utilized in poultry feed as a natural promoter of growth and as a substitute of antimicrobial. For

digestive disorders in ruminants, **peppermint oil** is used. Although these oils have many benefits, they can be harmful if not administered properly, especially in cats, which have limited pathways for detoxification of liver. The validation of the efficacy of these oils is still in its initial stage and there is a need for further research.

### **Ayurveda in Veterinary Medicine**

There is a long history of animal therapy in Ayurveda which is known as Pashu. It concentrates on achieving equilibrium among the three doshas: vata, pitta, and kapha. In Ayurveda, ashwagandha (*Withania somnifera*) is used for stress, reproductive health, and immune modulation in livestock (Yadav et al.). Neem (*Azadirachta indica*) has antiparasitic and antibacterial uses (Jamil et al., 2022). Then there is a mixture of three fruits called as triphala which is used as a digestive aid in cattle and goats (Reshma and Unnikrishnan, 2024). Turmeric (*Curcuma longa*) has anti-inflammatory in joint disorders of horses and dogs. India has owned research facilities which are funded by government that promote veterinary Ayurveda especially for their dairy cattle and poultry (Rastogi et al., 2015).

### **Traditional Chinese Veterinary Medicine (TCVM)**

Traditional Chinese Veterinary Medicine, TCVM is based on the same foundation as Traditional Chinese Medicine (TCM) which focusses on qi (vital energy), yin-yang balance i.e. fundamental duality, and meridian routes (Xie and Eckermann-Ross, 2012). Several methods such as acupuncture is used to treat diseases related to muscles and bones, severe pain, paralysis of nerve and concerns related to gastrointestinal motility in horses and dogs. Acupuncture technique is largely used by doctors who attend to horses. They use it to treat lameness, back pain and promote healing and strength after surgery (Habacher et al., 2006). Moreover, acupuncture or herbal combinations can also be utilised in treating dogs which are suffering from arthritis, intervertebral disc disease or epilepsy. Acupuncture owns greater evidentiary basis than homeopathy. There are several research studies which show its physiological effects such as release of endorphin and modification of neural pathway. Then there is a Chinese herbal formula known as bupleurum. It is used to strengthen the liver while another formula astragalus stimulates the immune system. Food therapy is also used like arranging food based on qualities of energy like warming, cooling, wetness and dryness (Habacher et al., 2006).

### **Nutraceuticals and Functional Foods**

As nutraceuticals are gaining acceptance as preventive and supportive medicines, the difference between diet and medicine continues to be getting blurred in veterinary practice, (Dzanic, 2008; Gupta et al., 2019). The weakness and strengths of alternative systems are mentioned in Table 1. To upgrade intestinal health and lower the necessity for antibiotics in poultry and cattle, probiotics are used (Márza et al., 2025). Similarly, omega-3 fatty acids are utilised in skin conditions of canine and their joint health (Carlisle et al., 2024). Glucosamine and chondroitin are widely employed to cure osteoarthritis in dogs and horses (Bhathal et al., 2017).

Whereas extracts from yeast and biologically active compounds from plant are promoted for the regulation of the immune system in livestock. The reason of being appealing of nutraceuticals is because they are considered safe and natural, yet, there is difference of regulatory measures between countries. The quality of some items is not controlled consistently and their scientific authentication differs (Finno, 2020).

This comparative framework shows that although there is a lack of empirical validation in homeopathy, other systems, particularly herbal medicine, acupuncture, and nutraceuticals, impart more concrete directions for their incorporation into experiential veterinary treatment.

### **FUTURE PERSPECTIVES**

One of the most common objections towards homeopathy and alternative pharmacological systems is a scarcity of valid and reproducible data (da Matta et al., 2025). However, progress in biological research may come up with techniques that are better for evaluation of these medicines. Metabolomics that is the study of metabolic changes in biological systems, can detect even slight biochemical reactions to treatments. For example, metabolomics may notice changes in biomarkers which are related to inflammation or immunity if herbal medicine or homeopathic preparation affects metabolic pathways in cattle. Proteomics can detect variations in expression of protein after therapy. This can possibly lead to linking of alternative medicines to physiological outcomes which may be verified (Xie et al., 2025). To better understand how treatments affect overall physiology, biology of system integrates data from genomes, proteomics and metabolomics. This encompassing approach may be similar to the ideas of Ayurveda and TCVM, which emphasise on the equilibrium of whole system rather than individual symptoms (Zhao et al., 2024).

Technologies, neuroimaging and electrophysiological can reveal that nerve circuits and responses to pain can be monitored in real time during acupuncture and manual therapy. This forms a scientific connection between conventional ideas of qi flow and meridians and measurable biological outcomes. The One Health approach, where human and animal health as well as environmental health are firmly interlinked, has been integral in the debate on alternative veterinary treatment development (Howland, 2021). Antimicrobial resistance is a global concern; therefore, any solution that could reduce antibiotic use in animals will be of interest. Despite the questionable direct efficacy of homeopathy, its indirect contribution to One Health may be an important factor in lowering farmer dependency on antibiotics (Velazquez-Meza et al., 2022).

The herbal and nutraceutical approaches most often have a lesser environmental impact compared to synthetic drugs, fitting very well within sustainable agriculture goals. Any kind of veterinary practice that alters disease dynamics in cattle impacts human populations. Evaluating options from an angle of One Health makes sure that safety of humans is not compromised. To gain validity in veterinary medicine,

**Table 1.** Comparing Alternative Systems: Strengths and Weaknesses

System	Strengths	Weaknesses	Evidence Level	Common Applications	Reference
Homeopathy	Low risk, accepted in organic farming	Lack of reproducibility, high scepticism	Low	Mastitis, oral papillomatosis	Camerlink et al., 2010; Mathie & Clausen, 2015
Herbal Medicine	Long tradition, some pharmacological basis	Standardization issues, toxicity risks	Moderate	Parasites, GI, skin	Rastogi et al., 2015
Ayurveda	Holistic, culturally embedded in Asia	Limited clinical data, standardization gaps	Low–Moderate	Immunity, stress, digestive	Silver, 2006; Reshma & Unnikrishnan, 2024
TCVM	Includes acupuncture with physiological evidence	Requires specialized training, variable results	Moderate	Pain, lameness, chronic illness	Xie & Eckermann-Ross, 2012; Xie & Preast, 2013
Nutraceuticals	Preventive, consumer demand high	Regulation inconsistent, quality varies	Moderate–High	Joint health, gut health	Dzanic, 2008; Gupta et al., 2019

alternative pharmacological systems has to overcome the following gaps in research;

- i. Randomised clinical trials using standardised methods are needed which must be multicentric and specific to species to ensure genuine efficacy.
- ii. Creation of a pharmacopoeia standards are required which will guarantee consistency in quality.
- iii. Focus on exploring the mechanisms of action that support acupuncture, herbal pharmacology and the possible effects of ultra-dilutions in homeopathy which may help to shorten the gap between tradition and science.
- iv. Direct contrast of alternative therapies to conventional pharmaceuticals in monitored domains is needed that would help in the identification of places where alternatives are precisely helpful.
- v. Systematic documentation of Indigenous and traditional knowledge that may reveal new drug candidates.

## CONCLUSION

The debate over homeopathy and alternative pharmacological systems in veterinary care is not likely to be resolved soon. Despite the persistence of scientific scepticism, the popularity of these systems indicates basic cultural, ethical and environmental concerns. Even after centuries of practice, homeopathy still lacks solid, repeatable evidence. Its future applicability will probably be restricted to special integrative situation, unless excellent research demonstrates otherwise. There is a strong potential for integration in herbal medicine, Ayurveda, TCVM, nutraceuticals and acupuncture, particularly when biological pathways are found. Lastly the veterinary pharmacology has pluralistic future which combines the strengths of conventional medicine with the most proven features of alternative systems while upholding the principles of one health and ethical obligations.

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