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Research

A CONCISE ON VETERINARY HERBAL MEDICINE

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Abstract:
Herbs provide a wide array of therapeutic benefits, including anti-inflammatory, analgesic antimicrobial and calming effects. Importance of Evidence-based Approach in Veterinary Medicine It is not possible to underestimate the importance of using an evidence-based approach in veterinary practice.This prudent approach forms the basis for ensuring that patients who are animals, receive care that is efficient, safe and morally sound.Veterinary clinicians can optimize the patient prognosis and outcomes to improve the quality of care by making well informed judgment about diagnostic and treatment methods based on empirical evidence taken from rigorous scientific research,observational studies and clinical trials.Decreasing the hazards linked with uncertainty and variability in veterinary clinical practice is one of the main benefits of evidence-based approach in veterinary medicine.Aromatic plants, herbs, and their essential oils have been used in traditional medicine, food preparation, and preservation, religious observances and cosmetic purposes for thousands of years. Today, the use of plant extracts in feed additives, as sources of medicinal compounds, continues to grow, aiming to address the modern consumer's demands for natural, safe, and high-quality products.Thus, research on the use and efficacy of aromatic plants should continue to better understand any health benefits in animals and humans.

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Introduction:

Herbal medicine practices are as old as human history. Plants have been used to treat and manage different disease conditions in different parts of the world since immemorial.[1]Herbs provide a wide array of therapeutic benefits, including anti-inflammatory,analgesic antimicrobial and calming effects.[2]In this herbal medicine the type of medicine called ayurveda.[3] In contrast, herbal compounds added to aquaculture feeds can prevent and control diseases of aquatic animals and they are known for their safety, low toxicity, and minimal environmental impacts.Research has shown that herbal medicine has an important role in enhancing the immune function of aquatic animals, and effectively promotes antiviral, antibacterial, antiparasitic activities of the immune system.Currently, many researches are focusing on the immunological role of specific extracts from individual herbs, allowing precision medication and a reduction in development costs. This study reviewed the application of herbal medicine in the prevention of disease in aquaculture, highlighting its potential as a more environmentally

friendly approach to prevent disease in aquaculture.[4] Evidence shows that Ayurveda, which originated in the treatment of people and animals is mentioned in the Rig Veda, the earliest source of human knowledge, written between 4500 and 1600 BCE. The "NakIndia, was possibly the first medicinal system.The use of medicinal herbs in Samhita," published about the same time, was possibly the first book on the use of herbs in the healing of animals.Animal husbandry chapters such as "Management and Feeding" may be found in ancient texts such as the Skandh Puran, Devi Puran, Harit, and others. Palkapya (1000 BC) and Shalihotra (2350 BC) were well-known veterinarians who specialised in elephant and horse care.King Asoka (274-236 BC) commissioned individuals to cultivate herbs for use in the care of ill and elderly animals (Wynn & Fougère, 2006). Ricinius, pepper, lily, and valerian are among the medicines described in early Ayuvedic literature of the CharakaSamhita (200 BC-AD 200).Vasant Lad characterises the foundation of Ayurveda ("life science") in a way that mirrors the Tao of Chinese medicine and the humours of Greek medicine.[5]Herbal medication is obtained exclusively through the extraction of the active principle of plant drugs, with its purpose being prophylactic, curative or palliative.The population of pets has increased significantly in recent years, with this increase, consequently, the demand for quality treatments for these family members has also increased.[6]Aromatic plants, herbs, and their essential oils have been used in traditional medicine, food preparation, and preservation, religious observances and cosmetic purposes for thousands of years.Today, the use of plant extracts in feed additives, as sources of medicinal compounds, continues to grow, aiming to address the modern consumer's demands for natural, safe, and high-quality products.[7]

Plant extracts as feed additives in horse:

Figure:1(Horse)

Horse In equines, although, the herbs or their extracts are being used for centuries to improve the performance, their usage, either as an adjunct to drug therapy or unaccompanied, is limited to sporting horses.Besides, as per the regulations of approved national and international equestrian committees, the use of plant extracts in racing contests continues to exist as an ever-debatable and under-researched theme.The phenomenon of disqualifying and elimination of several riders from 2008 Beijing Olympics for using the banned substances illustrates the complications involved in the usage of plant extracts for sporting horses. Furthermore, it is worth mentioning that only a few studies were carried out in equines as experimental animals, and only for a limited number of plant extracts, thus most of the existing evidence on the effects of use of herbal extracts in horses is anecdotal.It has been a traditional practice for horse owners, trainers, breeders, and animal care specialists to use various herbs or their extracts informally either as therapeutic applications or feed additives. reviewed data on nearly 80 veterinary plants through key informant interviews; however, their contribution to the existing

information on herbal extracts database for equines is not necessarily reliable, as they were based on the personal accounts rather than facts or research.Therefore, a greater understanding and knowledge on utilization of plant extracts in the equines may dispel the concerns over their usage, thus promoting them as feed additives to improve equine health and well being. A survey on US horse owners reported that a total of 58% people are spending $30 or more per horse per month on supplements.[8]

Reproductive Characteristics, Semen Quality, Seminal Oxidative Status, Steriod Hormones, Sperm Production Efficiency of Rabbits Fed Herbal Supplements:

Figure:2 (Rabbit)

Today, orthodox medicine has almost exceeded its limits in resolving subfertility problems in animals, thus making medicine a primary tool in the treatment of infertility.
The Phyllanthus *amarus* and Viscum album leaves were evaluated to ascertain their comparative effect on the reproductive potentials of bucks. Sixty bucks were allotted four diets made up of standard grower rabbit ration without supplement and with 5% Moringa, Mistletoe and Phyllanthus supplementation for 84 days. Semen samples were collected from all bucks using artificial vagina, for semen quality and seminal oxidative stress markers.The use of herbal medicinal plants is becoming an object of increasing interest due to its food safety, just as the use of antibiotics is becoming ever restricted because of its adverse effect on animals, residues in animal products and the development of antibiotic resistance. In Nigeria, several plants have been identified to have medicinal and nutritional potency, and has been used to enhance fertility in male and female animals. Feeds with additives rich in antioxidant could play a significant role in improving the reproductive health of rabbits.Herbal plants such as *Moringa oleifera*, *Phyllanthus amarus* and *Viscum album* have proven to have high therapeutic value and tends to increase an animal's general performance**.** In comparison to commonly used conventional forages, they contain low protein, moderate fibre, and high minerals, flavonoids and alkaloids with the presence of several compounds in one plant produces a

synergistic beneficial effect on the improvement of animal performance.Some herbs have been reported to improve libido, sexual behaviour, mating performance and spermatogenesis. In contrast, others have been reported to balance the levels of hormone such as testosterone, luteinising hormone, and follicle-stimulating hormone in the reproductive axis of male and female animals.The mechanism of action of some plants known to possess antifertility effect through their action on the hypothalamic-pituitary-gonadal axis or direct hormonal effects on reproductive organs is not precise. Given the consumption of *Moringa oleifera*, *Phyllanthus amarus*, *and Viscum album* leaves for the maintenance of health and well-being, the comparison of the effect of the herbs on sperm production efficiency,semen quality and peripheral hormonal levels for the enhancement of male fertility is imperative. Hence, the need for the comparative assessment of the herbs as feed supplement on reproductive organ weight, semen quality,seminal oxidative status, steroid hormones and sperm production potentials of rabbit bucks.The final weight and weight gain were significantly ($p < 0.05$) lower in rabbits fed with mistletoe supplement compared to those fed with Phyllanthus supplement.[9]

Botanical Elixirs Used on Buffalo:

Figure:3 (Buffalo)

Early treatises also addressed the Asian elephant, which was valued for its mobility and military prowess, although many species had well-developed treatment techniques The emperor Ashoka the Great funded the first Ayurveda veterinary facilities during this period when veterinary activities were funded by the state.Asoka's purported spiritual motive stemmed from the idea that dharma practice connected animal and human welfare. As a result, early veterinarian and medical practice was linked to spiritual beliefs and holy rites in a sacred society, where institutional veterinary activity originated.Via Buddhist writings, Ayurveda notions about physiology, health, and illness made their way from India to China, where they were subsequently connected to local conceptions of human and animal bodies in the setting of religion.In the ancient Arab and Mediterranean countries, medical and veterinary procedures were initially associated with religious rites. Secular medicine based on natural notions of health and disease also arose, even if religion and rituals remained important in medical treatments.As early as 130 BCE, regular doctors were described in ancient Greek treatises, with "Metrodoros" being named among them.

Understanding Rinderpest in Buffalo :

Native to Asia, buffaloes were then introduced to Africa, Europe, Oceania, and finally the American

continent, where they are now found in the United States, Argentina, and Brazil.The buffalo population has increased and is now widespread throughout the American continent. The world's population was estimated by the FAO to be 206.6 million in 2018. With an estimated 208,098,759 heads, and 77 nations with buffalo herds.Worldwide, the fastest-growing buffalo production systems are found in Latin America.An RNA virus belonging to the family Paramyxoviridae and genus Morbillivirus is the cause of rinderpest. Its virulent variants can cause up to 77% of morbidity and mortality in India, while mild strains can also cause varied levels of illness and death . Sheep, goats, cattle, water buffalo, and wild animals are all impacted. It poses no risk to the public's health and does not affect humans.The vulnerability of buffalo varies; species from the Far East seem to be particularly vulnerable, while Egyptian and Turkish buffalo seem to be rather resistant. Indian buffaloes are three times more vulnerable than cattle, which may be because certain viral strains are host-specific.This virus is never reported in Australia, New Zealand, and America.Both direct and indirect contact with secretions, urine, feces, vaginal discharge, and milk can spread the virus.[10]

Antiurolithic Effects of Medicinal Plants: Results of in Vivo Studies in Rat:

Figure:4 (Rat)

Urolithiasis is one of the oldest diseases affecting humans, while plants are one of our oldest companions providing food, shelter, and medicine. In spite of substantial progress in understanding the pathophysiological mechanisms, treatment options are still limited, often expensive for common people in most parts of the world. As a result, there is a great interest in herbal remedies for the treatment of urinary stone disease as an alternative or adjunct therapy. Numerous in vivo and in vitro studies have been carried out to understand the efficacy of herbs in reducing stone formation. We adopted PRISMA guidelines and systematically reviewed PubMed/Medline for the literature, reporting results of various herbal products on in vivo models of nephrolithiasis/urolithiasis. The Medical Subject Heading Terms (Mesh term) “Urolithiasis” was used with Boolean operator “AND” and other related Mesh Unique terms to search all the available records (July 2019). A total of 163 original articles on in vivo experiments were retrieved from PubMed indexed with the “Urolithiasis” AND “Complementary Therapies/Alternative Medicine, “Urolithiasis” AND “Plant Extracts” and “Urolithiasis” AND “Traditional Medicine”.Most of the studies used ethylene glycol (EG) to induce hyperoxaluria and nephrolithiasis in rats. A variety of extraction methods including aqueous, alcoholic, hydro-alcoholic of various plant parts ranging from root bark to fruits and seeds, or a combination thereof, were utilized. All the investigations did not study all aspects of nephrolithiasis making it difficult to compare the

efficacy of various treatments. Changes in the lithogenic factors and a reduction in calcium oxalate (CaOx) crystal deposition in the kidneys were, however, considered favorable outcomes of the various treatments. Less than 10% of the studies examined antioxidant and diuretic activities of the herbal treatments and concluded that their antiurolithic activities were a result of antioxidant, anti-inflammatory,and/or diuretic effects of the treatments.[11]

The Influential Medicinal Plants in the Livestock Poultry:

Figure:5 (Poultry)

The importance of animal husbandry for economic, cultural, and social reasons, such as the source of income for different strata of society, increasing soil fertility, and production of livestock products (milk, meat, wool, *etc*.) is very important for rural and nomadic households. This industry has always been the focus of this part of society, and in a way, animal husbandry is considered the main capital of families in these areas, who can earn relatively good income through this activity.

Thyme (Thymus Vulgaris):

Thyme is a native plant of the eastern Mediterranean and one of the oldest medicinal plants that have been used in human and animal medicine for the treatment of many diseases since ancient times.The utilization of these common cancer prevention agents in creature nourishment diminishes oxidation by supplanting its viable compounds within the phospholipid film of the cell. The use of thyme plant within the count caloriescompounds due to the nearness of the phenolic bunch in thymoland carvacrol but too by making a difference to diminish the pH of meat to less than 5.8, decreases the microbial stack of meat amid collect after the butcher. The phenol shown in thyme decreases the oxidation of hemoglobin and thegeneration of methemoglobin amid the post-slaughter period, in this way keeping up the quality of meat color. Lessening of oxidation file (TBARS) taken after the utilizationof thyme shows the hindrance of fat oxidation due to the nearness of phenolic gather and hydroxyl gather that repress free radicals, as well as the chelation of metal components by the carboxyl bunch of this plant's compounds. In expansion, the utilization of thyme moves forward the taste and scent of devoured meat. In common, the inquire about comes about appears that the utilization of thyme plant in animals nourish or the utilize of its extricate can viably keep up color quality, decrease microbial stack, decrease fat oxidation, and increment the taste and toughness of meat amid the capacity period after being murdered. It is an annual plant that is native to temperate regions.[12]

Anti-Bacterial Activity of Herbal Medicine on Aquatic Animals :

Figure:6 (Aquatic animals)

Aeromonas hydrophila, an opportunistic aquatic pathogen, causes several major diseases including skin ulcers and hemorrhagic septicemia. Feeding with 4% and 6% powdered E. ulmoides leaves improved the immune response of carp and enhanced their ability to resist a hydrophilia infection. Korean mistletoe extract also enhanced the immune stimulation and nonspecific immunity of Japanese (Anguilla japonica). After A. hydrophila infection, a 0.5% mistletoe concentration stimulated phagocytic activity, resulting in increased reactive oxygen intermediate (ROI) production.Adding A. membranaceus to the feed of Oreochromis niloticus significantly increased the phagocytic activity of blood cells, reducing the mortality rate of O. niloticus following A. hydrophila infection. Urtica dioica promoted the immune function of Victoria, resulting in a 95% survival rate of V. labeo challenged with A hydrophila Common carp (Cyprinus carpio) fed 0.5% and 1% gallnut additive prevented A. hydrophila-induced bacterial septicemia. Although l% and 2% A. paniculata additive fed to grass carp did not affect most of the dominant bacteria in the carp intestine, it did significantly reduce the number of Aeromonas Ficus carica polysaccharides used as immunostimulants are capable of enhancing immune responses and disease resistance against A. hydrophila in crucian carp.[13]

Application of Antibiotics and Their Adverse Effects in Aquauaculture

Application of antibiotics in livestock and fishery sector is extensively made by a veterinarian, in aquaculture alone, and the use of a massive amount of antibiotics leads to accumulation of in fish farms. Moreover, it appears that further antibiotics-resistant and multi-resistant strains have become potent in the aquatic environment directly passing via the seafood chain and thus could have a public health concern.The indiscriminate use of antimicrobials accompanied by environmental factors leads to the evolvement of new resistant bacterial pathogens.The adverse effect of antibiotic-resistant bacteria in humans and animals is influenced by the nature of the ecological action mechanism, antibiotics, aquaculture, disease resistance, immunostimulants, medicinal Plant habitat.Thus, it is tough to measure the direct casualties that occurredthat it could be possible to reveal the close relationship between antimicrobial-resistant bacteria in humans and animals.Therefore, it is crucial to develop some natural compounds that could replace antibiotics in aquaculture.[14]

Conclusion:

veterinary herbal medicine has emerged as a valuable adjunct to conventional veterinary practice. The scientific evidence supporting the use of herbal remedies in veterinary medicine is growing, and many herbal products have shown promise in treating various animal diseases. However, further research is needed to fully elucidate the safety, efficacy, and

potential interactions of herbal remedies with conventional medications. As the demand for natural and holistic approaches to animal healthcare continues to grow, veterinary herbal medicine is likely to play an increasingly important role in the future of veterinary practice.

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