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The Benefits of Basil leaves as Natural Medicine in Livestock Production

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Abstract

This paper identified some existing indigenous technical knowledge inherited from the past generation on the usage of basil leaves. It highlights the benefits of basil leaves as natural medicine for livestock production by rural farmers. Basil is known to possess analgesic, anti-inflammatory, antimicrobial, antioxidant, anti-ulcer, cardiac stimulant, chemomodulatory, hepatoprotective, immunomodulatory, hypoglycemic, and larvicidal activities. Some of the chemical compounds in basil leaves were mentioned. Understanding the mechanism of action of basil leaves used by rural livestock farmers could lead to more efficacious formulations of active components with the potential of becoming effective medications among the commercial scale farmers.

Keywords: Indigenous knowledge, basil leaves, ethno veterinary medicine, livestock

Introduction

The high incidence of disease is one of the major constraints to livestock production systems in Nigeria. In order to control various livestock diseases, ethnoveterinary/traditional medicine is widely practiced by rural resource-poor farmers (Gueye, 1999). The reliance of ethnoveterinary procedures by rural farmers is due mainly to problems like inadequate supply of orthodox drugs, lack of finance, exorbitant cost, poor storage facilities and unavailability of consultancy advice from veterinary officers in remote villages (Ekemezie and Fasanmi, 2007). The traditional way of rearing livestock originally uses less of synthetic drugs, although the birds raised are hardy in nature. Birds are almost never vaccinated. The rural small poultry farmers have particularly developed methods or technologies for coping with the health related problems through indigenous knowledge.

This paper discusses the indigenous knowledge applications of basil leaves as natural medicine for livestock production by rural farmers

The Diversity of Indigenous Herbal Medicine

The term indigenous knowledge was first used to describe knowledge that is generated and transmitted by communities overtime, in an effort to cope with their own agro-ecological and socioeconomic environments (Keegwe and Bekalo, 1996). The characteristics of indigenous knowledge could be summarized in the following way: locally bound; indigenous to a specific area; culture- and context-specific; non-formal knowledge; orally transmitted and generally not documented (Adu *et al.*, 2009); dynamic and adaptive; holistic in nature; closely related to survival and subsistence for many people worldwide (Okitoi *et al.*, 2007; Mirzaei-Aghsaghali, 2012 and Hashemi and Davoodi, 2012). Among the various indigenous methods is the use of herbs to manage animal diseases.

The practical applications of indigenous medicinal herbs/plant extracts are being explored for improving animal health as well as production with fruitful results (Kuldeep Dhama *et al.*, 2015; Mahimai *et al.*, 2012). The knowledge base of these herbs differs not only from region to region but also within communities. It has been developed through trial and error and deliberate experimentation. Therefore, it is less systematic, less formalized, and not universally recognized as a valid method of disease control in animals (Matekaire and Bwakura, 2004).

In many countries, there has been little documentation of the traditional knowledge rather it has been transmitted across generations by an oral tradition and therefore is in danger of extinction (Matekaire and Bwakura, 2004). Plant derived antioxidants are gaining more demand in poultry nutrition because their meat has high content of polyunsaturated fatty acids and susceptible to lipid oxidation (Christaki, 2012). Essential oils obtained from plants are known to provide sufficient facts as a tool in preventing bacterial diseases in poultry (Gopi *et al.*, 2014; Dorman and Deans, 2000).

Medicinal Properties of Plant Parts

The flowers of plants have always been popular in traditional medicine. Fruits have been heavily used for medicinal purposes. The leaves of plants, shrubs, and trees can be used for medicinal properties. Leaves can

be used alone or can be mixed with twigs, stems, and buds. The fleshy or woody roots are used for medicinal purposes. The seeds of many plants are used for their medicinal properties. Seeds may be contained within a fruit or are sometimes used on their own.

Health Benefits of Basil Herb

The massive use of antibiotics for disease prevention and growth promotion in animal nutrition has been implicated in the emergence of antibiotic resistant pathogens and antibiotics residues in animal products, which is a public health concern. Therefore, certain regulatory bodies such as the European Commission (EUC, 2005) have banned the continuous use of antibiotics in animal feed. Thus the search for natural alternatives, which are safe, cheap and readily available to small holder farmers, is an important strategy. Indigenous knowledge has gone a long way over the years to ensure minimal livelihoods for the rural resource-poor people. They rely on ancestral indigenous knowledge to control various poultry diseases (Gueye, 1999). In ethnoveterinary medicine natural products, especially those of plant origins are used for the treatment and/or in some cases, the prevention of disease.

One of such herbs used for treatment is basil herb; Basil is an herbal antibiotic, antiseptic, carminative, and appetizer that have a special affinity for the digestive tract. It also contains powerful anti-inflammatory properties. It is also highly antibacterial and antiviral making it effective against bacterial infections and intestinal parasites. Basil belongs to the family of *Lamiaceae*, in the genus: *Ocimum* there are different species such as *Ocimum gratissimum*, *Ocimum basilicum*, *Ocimum sanctum*, *Ocimum tenuiflorum*, *Ocimum canum*. *Ocimum gratissimum*: is a small shrub commonly known as “scent leaf,” “tea bush” or “fever plant.” In Nigeria, it is variously called “Nchuanwu,” “Ahinji,” “Ahigbu” (Igbo), “Efirin” (Yoruba), “Ihiri eziza” (Bini), “Dai doya tagida” (Hausa) or “Ntion” (Efik) and is found in the wild or cultivated throughout the tropics and subtropics.

In West Africa, *O. gratissimum* is commonly found around village huts and gardens and cultivated for medicinal and culinary purposes. The leaves have strong aromatic odor. Basil is originally native to Iran, India and other tropical regions of Asia. This bushy annual herb is especially grown for its medicinally useful leaves and seeds. Basil herb contains many *polyphenolic flavonoids* like orientin and vicenin. These compounds were tested *in-vitro* in the laboratory for their possible anti-oxidant protection against radiation-induced lipid peroxidation in mouse liver. Basil leaves are composed of several health benefiting essential oils such as *eugenol*, *citronellol*, *linalool*, *citral*, *limonene* and *terpineol*. These compounds are known to have anti-inflammatory and anti-bacterial properties.

The herb is very low in calories and contains no cholesterol. Basil herb contains exceptionally high levels of *beta-carotene*, *vitamin A*, *cryptoxanthin*, *lutein* and *zea-xanthin* (Okoli, *et al.*, 2010). These compounds help act as protective scavengers against oxygen-derived free radicals. Vitamin K in basil is essential for production of clotting factors in the blood and plays a vital role in the bone strengthening and mineralization. Basil herb contains a good amount of minerals like potassium, manganese, copper, and magnesium. Basil leaves are an excellent source of iron. Boiling basil leaves with honey and ginger is useful for treating bronchitis, cough and influenza in chickens. This may be because basil contains cinnamic acid, which has been found to enhance circulation and improve breathing in the birds with respiratory disorders. Basil juice is also good for sore eyes.

Vitamin K in basil is essential for many coagulant factors in the blood and plays a vital role in the bone strengthening function by helping mineralization process in the bones. Antioxidants have become an important part of keeping our bodies healthy, and basil may be among the safest and most effective sources of these life-giving compounds. Volatile oils in basil, combined with their antioxidant effects, make it a great health boost for our immune systems. The herb is known to contain antispasmodic properties that help calm queasiness and promote healthy digestion. Fresh basil leaves and basil oil has antibacterial properties. They can be used to disinfect surfaces. Leaves, applied to wounds, may eliminate infection. The seeds can be used to rid the body of excess mucus and remove phlegm from bronchial tubes. Basil leaves are an excellent source of iron. Iron, being a component of hemoglobin inside the red blood cells, determines the oxygen-carrying capacity of the blood.

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