



Review on Effect of Feeding Aeglemarmelos (Bael) in Animals

KEYWORDS

AegleMarmelos, Pharmacological Activities, Medicinal Values

Singh Ajay

Department Of Animal Nutrition, College Of Veterinary and Animal science, Bikaner Rajasthan University Of Veterinary And Animal Sciences, Bikaner, rajasthan

Sharma, T

Department Of Animal Nutrition, College Of Veterinary and Animal science, Bikaner Rajasthan University Of Veterinary And Animal Sciences, Bikaner, rajasthan

Dhuria, R.K

Department Of Animal Nutrition, College Of Veterinary and Animal science, Bikaner Rajasthan University Of Veterinary And Animal Sciences, Bikaner, rajasthan

Kaushik, P.K

Department Of L.P.M., P.G.I.V.E.R, Jaipur,Rajasthan University Of Veterinary And Animal Sciences, Bikaner, rajasthan

ABSTRACT

Over the last few years, researchers have aimed at identifying and validating plant derived substances for the treatment of various diseases. Similarly it has been already proved that various parts of plants such as Whole plants, Leaves, fruits, seeds, Barks, Root etc. provide health and nutrition promoting compounds in animal diet. The Bael (Aeglemarmelos) is another Indian plant, which has enormous traditional uses against various diseases. The present review aims to compile medicinal values of AegleMarmelos generated through the research activity using modern scientific approaches and innovative scientific tools.

Introduction

Throughout the history man and animals have been looked for sources of herbal medicines and narcotic stimulation (Brander,1931 and Riesenberg,1948) There is a widespread belief that the green medicines are healthier and more harmless or safer than synthetic ones (Parvath and Brindha, 2003).

The *A. marmelos* belongs to the family *Rutaceae* and is known as (Opesheet, Ohshit) in Burmese; (Bail fruit, Indian Bail, Holy fruit, Golden apple, Elephant apple, Bangal quince, Indian quince, Stone apple) in English; (Oranger du Malabar, Cognassier du Bengale, Belindian) in French; (Belbaum , Schleimapfelbaum, Baelbaum) in German; (Bili) in Gujarati; (Baelputri, Bela, Sirphal, Siriphal,Kuralam) in Hindi; (Majabatuh, Maja) in Indonesian; (modjo) in Javanese; (Bnau) in Khmer; (Toum, Sino-Tibetan) in lao; (Bilak, Bel, Bila, Mijapahit) in Malay (marmelos) in Portuguese; (Matum , Mapin, Tum) in thai; (Trae mam, Mbaunau) in Vietnamese (Orwaet al.,2009).The present study aims to document various effect of feeding *Aeglemarmelos* in Animals.

A. marmelos is one of the most important medicinal plants of India, Burma and Ceylon (Srivastvaet al, 1996). *A. marmelos* is a subtropical species. In the Punjab, it grows up to an altitude of 1,200 m where the temperature rises to 48.89°C in the shade in summer and descends to -6.67°C in the winter, and prolonged droughts occur (Orwaet al., 2009). *A. marmelos* is said to do best on rich, well-drained soil, but it has grown well and fruited on the oolitic limestone of southern Florida. It also grows well in swampy, alkaline or stony soils having pH range from 5 to 8 (Orwaet al, 2009). In India flowering occurs in April and May soon after the new leaves appear and the fruit ripens in 10 to 11 months from bloom (March to June) of the following year (Orwaet al., 2009).

Whole plant fed to cattle (Rahmatullahet al.,2010). *A.Marmelos* whole plant fed in Liver disorder, sunstroke,

jaundice, constipation, sexual disorder, piles, aepsia, failure of digestive functions) in cow or sheep. Juice from whole plant is administered orally to humans. *Aeglemarmelos* fruit having antimicrobial activity against *E.coli* isolated from goat (Dubey et al.,2009). *Aeglemarmelos* extract effectively reduce the oxidative stress induced by alloxan and produce a reduction in blood sugar in rats (Sabu and Kuttan,2004). Bael had an important source of medicine for curing various human and animal diseases (Kala,2006). *A.marmelos* leaf fed to animals in different condition like wounds, killing worms, fodder for sheep, goat and cattle, stimulation of respiration and contraction of denervated nictitating membrane in anaesthetized cats (Gaur,1999, www.uclm.es/inabis2000/posters/files/133/index.htm).

The essential oil isolated from the **leaves** of Bael tree has proved to antifungal activity against animal and human fungi like *Trichophyton mentagrophytes*, *T. rubrum*, *Microsporium gypseum*, *M. audouinii*, *M. cookei*, *Epidermophyton floccosum*, *Aspergillus niger*, *A. flavus* and *Histoplasma capsulatum* (Jain, 1977). A powder of the dried leaves of bel (*Aeglemarmelos*) mixed with rice grain work as a protectant against storage pests of paddy (Prakash et al.,1983).

Flower of *A.marmelos* used as expectorant and also in epilepsy (jain,1991, Grieve and Leyel,1992).

***A.marmelos* fruit** as it is astringent, laxative, digestive, stomachic, brain and heart tonic, antiviral fed to animal in conditions like diarrhea, gastric troubles, constipation, dysentery, ulcer, gonorrhoea and epilepsy (jain,1991, Grieve and Leyel,1992 Gaur,1999, Veerappan et al.2000). The ripe fruit promotes digestion and is helpful in treating inflammation of rectum. The ripe fruit extract showed antiviral activity against Ranikhet disease virus (Mazumdar, 1995). Pulp of ripe fruit is sweet, cooling, aromatic and nutritive when taken fresh. Fruit pulp marmalade is used as preven-

tion during cholera epidemics, also given to prevent the growth of piles, useful in patients suffering from chronic dysenteric condition characterized by alternate diarrhea and constipation relieves flatulent colic from a condition of chronic gastrointestinal catarrhs. Fresh juice is bitter and pungent fruit extract lower the blood sugar (Vyas et al., 1979). Fine powder of unripe fruit showed significant effect on intestinal parasites and also effective against *Entamoeba histolytica* and *Ascaris lumbricoides* (Trivedi et al., 1978). Bael fruit/powder @ 24 g/100 kg b wt were significantly effective as supportive therapy in diarrhea (Suchitra et al., 2005), favourable effect of plants combination *Murrayakoenigii* (Curry leaf plant) and *A. marmelos* (Bel) on reproductive performance in anestrus goat (Dutt et al., 2010). *Aegle marmelos* (bael) fruit improved clinical and haemato-biochemical profile of diarrhoeic goats. (Quadri et al., 2012) Utilization of processing waste of bael (*Aegle marmelos* Correa). Bael is an Indian indigenous plant which also has prominent gastroprotective effect. Pretreatment of rats with unripe bael fruit extract produced a significant inhibition of absolute ethanol induced gastric mucosal damage (Dhuley, 2004)

Root of *A. marmelos* used in gastric troubles, heart disorders, intermittent fevers, rheumatism and as anti-amoebic, hypoglycaemic (Kritkar and Basu, 1984, Veerappan et al., 2000). The ethanolic extract of the root has shown activity against *A. fumigatus* and *T. mentagrophytes* (Pitre and Srivastava, 1987).

Bark of *A. marmelos* used in stomach disorder, intermittent fever and heart disorder. (Veerappan et al., 2000, George et al., 2003).

The unsaponifiable matter of the **seed** has exhibited considerable *in vitro* activity against various fungi namely: *Trichophyton rubrum*, *T. terrestre*, *E. floccosum*, *Aspergillus fumigatus*, *A. niger* and *A. flavus* (Singh et al., 1983). Seed oil of the plant is laxative (Grieve and Leyel, 1992).

The *Aegle marmelos* Correa exhibited severe toxicity to the brine shrimp (BST) nauplii, wheat rootlet growth (WRG) inhibition bioassay and lettuce seed germination (LSG) bioassay. It exhibited no inhibition to the growth of PPR and Reo virus in vero cell line. (Jabbar et al., 2004)

The use of bael wastes substituted at 25% of animal feed not only reduces the feeding and processing costs but also prevents health hazards and environmental pollution (Saini et al., 2002).

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