

Aloe Vera

A Succulent plant species are widely being used as a medicinal plant for various conditions like an antioxidant, antibacterial, antifungal, antiviral, wound healer, diabetes, etc. Because of its antibacterial activity against Staphylococcus aureus (S. aureus), Escherichia coli, MRSA (Methicillin Resistant S. aureus), Streptococcus spp., it can be used in mastitis treatment. Bacterial Cell Membrane Disruption was observed in the above-stated species after incubation for 24 hours with methanolic extract of Aloe vera.

Aloes helps to drain the infection, has anti-inflammatory properties, and is a coagulant. It has a diuretic property also, which serves to soften the hardened udder. Coats and Holland recommend injecting 20 to 60 cc of aloes (in gel or juice form) into the infected quarter at least once a day or can be applied over udder in paste form.

Aloesin, Aloin, Aloe-emodin, Aloe-mannan are the active compounds. The ingredients required for the preparation of herbal paste were Aloe vera (3 leaves gel), turmeric powder (handful quantity), and lime. Dilute it with water and apply over infected and normal udder after the complete draining of quarters. In the study pH, conductivity, and somatic cell count of mastitis found lesser than the positive control in the herbal treatment after 5 days of post-treatment.



Tinospora cordifolia (Giloy)

Genetically diverse, large, deciduous climbing shrub with greenish-yellow typical flowers, found at higher altitude. It is famous for its medicinal properties like antimicrobial, anti-diabetic, anti-spasmodic, anti-inflammatory, anti-oxidant, anti-stress, anti-malarial, immunomodulatory and anti-neoplastic activities. Gloitin, Tinosporic acid (active compounds) aids in increasing the phagocytic activity of PMNL cells in milk in Subclinical mastitis and also play a role in a specific and nonspecific immune response. Upadhy and coworkers demonstrated the antibacterial activity of Tinospora cordifolia extract against Escherichia coli, Staphylococcus aureus, Klebsiella pneumoniae, Proteus vulgaris, and Salmonella typhi. Intramammary infusion of a polysaccharide fraction of T cordifolia (PFTC) treatment significantly reduced the somatic cell count (SCC) and neutrophil count. The stems were cut into small pieces washed, shade dried and pulverized by a mechanical grinder, passed through a mesh sieve. Further, dilute the obtained paste in PBS and infuse intramammary for 1-2 weeks.

It is concluded that Dairy farming is one of the largest sources of economy in India. Mastitis and its consequences led to serious losses to the farmers and entrepreneurs engaged in the Dairy farming sector. The commonest treatment available against mastitis is the intra-mammary, intramuscular, and intravenous infusion of antibiotics. However, antibiotic use is associated with the problem of antibacterial resistance, residues in milk and residual effect in food chain therefore use of herbal medicines against mastitis is the best alternative. Proper management, preventive measures, and alternatives to allopathic medicines need to gear up in the animal sector to reduce the financial viability of farmers and save them from an economic crisis.



DIGITIZING INDIAN AGRICULTURE

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By 2050, the world's population will be nearly 10 billion. Much of the addition will be in developing countries like India, where increasing quality of life often causes an increase in food intake per capita. As a result, to feed the planet we will need to produce 50% more food than we do today, despite restricted and insufficient arable land and water supplies. At the same time, existing agricultural activities, absorbing 70 % of global water withdrawal (and 91% in India), are largely ineffective. An example is the still commonly used flood irrigation system, which wastes water and yields unoptimized. The planet will need to embrace smart technology and learn how to best use its capital to produce more with less. India is one of the world's most water-challenged countries, with 16 % of the world's population and just 4% of world's water supplies. With more than 90% of freshwater withdrawals going to agriculture and following the unpredictable monsoon and conventional farmers' use of inadequate flood irrigation - including for rising water-hungry crops such as paddy, cotton and sugarcane - groundwater levels have dropped over the years. Water shortage, declining cultivable land and lower productivity add to the farming community's woes in India and highlight the need for sector reform. Drip irrigation is a technology that gives each plant the amount of water and fertilizers it needs, when and where it needs them. This helps farmers to double their yields by using just 50 percent of the water provided by conventional irrigation methods, by increasing the productivity of other farm inputs such as fertilizers, pesticides, labor, etc. India has over 140 million hectares of net cultivated land and about 45% of the land is irrigated. Roughly 9 million ha are currently under micro irrigation, around four million ha of which is irrigated by drip. It means a long way to go in agriculture for a smarter India

Farmers in India once had no landline phones and went straight to cell phones. This technology is the same. There's great technology transforming agriculture and helping farmers dramatically increase yields. For example, an ongoing project at Ramthali in Karnataka is spread over 11,000 ha and involves over 6,000 farmers. The community-based drip irrigation system is regulated from where we can determine how much water will go to each field and, when, everything is digital, wireless the hardware, data and other digital resources are continually dropping and their functionality improves, you don't need to own a large farm to reap the advantages and high returns of these systems.

I assume we will see a much wider adoption of advanced drip irrigation technology in India in five to 10 years from now, and every farmer will have an integrated, intelligent system that he can run from his mobile device. These mass adoptions would boost farm sector profitability, and India's overall economy would increase farmers' income. It is the vision of "smarter India," a vision already happening

