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Medicinal Plant of Alovera

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Abstract: *Aloe vera, a cactus-like plant has been used for traditional medical purposes for thousands of years. Aloe leaves can be separated into two basic products: the latex, a bitter yellow liquid beneath the epidermis of the leaf and the gel, a colourless and tasteless substance in the inner part of the leaf.*
Both of them have many biologically active components, mainly anthraquinones and polysaccharides (the most active is acemannan), which may act alone or in synergy. Scientific studies provide support for the application of Aloe vera in cosmetic-moisturizers, toothpastes etc, and food as flavouring compounds or preservative of fresh products and in medicine of humans or animals. Aloe vera seems to treat a variety of conditions because of its wound healing, anti-inflammatory, immunity, antidiabetic, antioxidant, laxative, antibacterial, antifungal, antiviral and antitumor effects. Besides these applications it can be also included in the animal's diet to utilize their benefits to the maximum extent.

Keywords: Aloe vera, cosmetic applications, food applications, medicinal applications, animal nutrition

I. INTRODUCTION

The Aloe vera plant has been known and used for centuries for its health, beauty, medicinal and skin care properties. The name Aloe vera derives from the Arabic word "Alloeh" meaning "shining bitter substance," while "vera" in Latin means "true." 2000 years ago, the Greek scientists regarded Aloe vera as the universal panacea. The Egyptians called Aloe "the plant of immortality." Today, the Aloe vera plant has been used for various purposes in dermatology.
The botanical name of Aloe vera is *Aloe Barbadensis miller*. It belongs to Asphodelaceae (Liliaceae) family, and is a shrubby or arborescent, perennial, xerophytic, succulent, pea- green color plant. It grows mainly in the dry regions of Africa, Asia, Europe and America. In India, it is found in Rajasthan, Andhra Pradesh, Gujarat, Maharashtra and Tamil Nadu.

The plant has triangular, fleshy leaves with serrated edges, yellow tubular flowers and fruits that contain numerous seeds. Each leaf is composed of three layers: 1) An inner clear gel that contains 99% water and rest is made of galactomannans, amino acids, lipids, sterols and vitamins. 2) The middle layer of latex which is the bitter yellow sap and contains anthraquinones and glycosides. 3) The outer thick layer of 15–20 cells called as rind which has protective function and synthesizes carbohydrates and proteins. Inside the rind are vascular bundles responsible for transportation of substances such as water (xylem) and starch (phloem).

Active components:-
***1. Vitamins*:** It contains vitamins A (beta-carotene), C and E, which are antioxidants. It also contains vitamin B12, folic acid, and choline. Antioxidant neutralizes free radicals.

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2. Sugar: Itprovides monosaccharides (glucose and fructose) and polysaccharides:(glucomannans/polymannose). These are derived from the mucilage layer of the plant and are known as mucopolysaccharides. The most prominent monosaccharide is mannose-6-phosphate, and the most common polysaccharides are called glucomannans [beta-(1,4)-acetylated mannan]. Acemannan, a prominent glucomannan has also been found. Recently, a glycoprotein with antiallergic properties, called alprogen and novel anti-inflammatory compound, C-glucosylchromone, has been isolated from Aloe vera gel

3. Hormones: Auxins and gibberellins that help in wound healing and have anti-inflammatory action.

4. Minerals: It provides calcium, chromium, copper, selenium, magnesium, manganese, potassium, sodium and zinc. They are essential for the proper functioning of various enzyme systems in different metabolic pathways and few are antioxidants.

5. Fatty acids: It provides 4 plant steroids; cholesterol, campesterol, β-sisosterol and lupeol. All these have anti-inflammatory action and lupeol also possesses antiseptic and analgesic properties.

6. Anthraquinones: It provides 12 anthraquinones, which are phenolic compounds traditionally known as laxatives. Aloin and emodin act as analgesics, antibacterials and antivirals.

7. Enzymes: It contains 8 enzymes: aliiase, alkaline phosphatase, amylase, bradykinase, carboxypeptidase, catalase, cellulase, lipase, and peroxidase. Bradykinase helps to reduce excessive inflammation when applied to the skin topically, while others help in the breakdown of sugars and fats.

8. Amino acids: Aloe vera gel provides the amino acids required for repair and growth. It includes 20 of 22 non-essential amino acids and 7 of 8 essential ones.

9. Salicylic acid: This is an aspirin-like compound possessing anti inflammatory and antibacterial propertie

10. Others: It provides 20 of the 22 human required *amino acids* and 7 of the 8 essential amino acids. It also contains salicylic acid that possesses anti-inflammatory and antibacterial properties. Lignin, an inert substance, when included in topical preparations, enhances penetrative effect of the other ingredients into the skin. Saponins that are the soapy substances form about 3% of the gel and have cleansing and antiseptic properties.

II. CONCLUSION

Aloe vera plant has been recognized since ancient times as a species with varied applications in medicinal fields and, with advances in scientific research, the potentialities of applications of this plant as an active ingredient in functional food, edible coatings, cosmetics, and pharmaceutical products have been demonstrated. This plant is widespread throughout the world, requires basic agronomic management and can be transformed through agro-industrial processes to confer a great added value.

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