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Sibr (*Aloe vera*) and its therapeutic efficacy described in Unani Medicine: A Review

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Abstract

Elva is described in the Unani literature in the name of *Sibr* which is scattered throughout the world. During 1550 BCE the *Ebers Papyrus* describe the healing benefits of aloe for both internal and external conditions. Internally used for the cure of digestive system, including *Qabz* (constipation), *Zofe Ishteha* (Loss of appetite), *Qarhae Medi* (peptic ulcers), irritable bowel syndrome, *Qaulanj* (Colitis) as well as, *Zeequn Nafas* (asthma), *Ziabetus Shakri* (diabetes), *Sartan* (Cancer) and *Taqwiyate Manat* (enhancement of the immune system), and externally for eczema, dermatitis, sunburn et.. After analysis of literature review of classical text and scientific papers, it is shown some remarkable pharmacological activities such as *Mushil* (purgative), *Mulayyin* (Laxative), *Dafe Iltehab* (anti-inflammatory), *Dafe Ziabetus* (Hypoglycemic), *Dafe Sartan* (anticancer), *Taqwiyate Qalb* (Cardioprotective), *Mundamile Qurooh* (Anti-ulcer), anti-aging effect, antiviral, antioxidant, antiseptic and moisturizing. This review is an endeavor to emphasize the various traditional uses as well as pharmacological information on *Elva*.

Keywords: *Sibr*, *Elva*, *Aloe vera*, Unani Medicine.

Introduction

Elva is commonly known as "Aloe" which scientific name is *Aloe vera* (L.) Burm. F., belongs to the family of Xanthorrhaceae.[1] *Elva* (Aloe) is one of the oldest medicinal plants documented in the history. It is not only a medicinal substance, but has also been mentioned as a plant for beauty and to be a sanctuary plant of immortality probably because of its varied functions. It has been used for medicinal purposes inside several social orders from long time: Greece, Egypt, India, Mexico, Japan, and China are the testimony of its use since centuries.[2, 3] During 4000 BCE Recorded in Ancient Egypt as a "sanctuary plant of immortality". Dioscorides, in his *De Materia Medica*, write the first in-depth report of the pharmacological actions of aloe during 41-68 A.D.[4]

Morphological description in Unani literature:

Elva has a leaf closely resembles to squill — thick, fat, somewhat broad close to the stem, broken or bow-backed behind, with short, thin prickles along the sides. It sends a stalk like anthericum; has a white flower, and seed like asphodelus. It has a solid fragrance and is quite bitter in the taste. It has a single root like a stake. It grows abundantly in India; it also grows in Arabia, Asia and certain ocean bordering places and islands as in Andros. This type is not preferred for extracting juice, but suitable for closing open cuts, bruises and wounds, pounded into little pieces and applied. There is a thick kind of juice that is grainy, one of which appears to have the purest substance, the other like liver.[5] According to Unani physicians *Elva* has three common varieties (a) *Saqootari Elva* (b) *Arabian Elva* and (c) *Sanjabi Elva*. *The sanctuary* is considered the best variety among three. Its juice looks like saffron water and its smell is like that of bright myrrh. It is weak and free from stones. The *Sanjabi* type is substandard in quality, putrefactive in nature, overwhelming and light yellow in colour and less bright (Figure 1 and 2).[6, 7]

Vernacular Names

Arbaic	: Sibr
Assamese	: Musabhar, Machamber
Bengali	: Ghritakalmi, Ghrit-Kumari, Musabhar, Kanya
English	: India aloe, Small aloe
Gujrati	: Eliyo, Eariy, Kunvar, Kumarpathy, Nahani Kanvar, Kamrapathu
Hindi	: Musabhar, Elva, Ghee-kanvar, Kumari, Chhota kanvar
Kannada	: Karilola, Lobasara, Satra, Boralsara Molisara, Kolesara, Kolasoere, Loli-Sara
Kashmiri	: Musabbar, Sibr, Kathaligida, Komarika
Malayalam	: Chenninayakam, Kattavaza Kumari, Kattavala
Marathi	: Korphad, Korkand
Oriya	: Mushaboro, Kumari
Persian	: Sibr
Punjabi	: Kalasohaga, Mussubar, Alua, Elva
Sanskrit	: Kumarirasasambhava, Sahasara, Ghritra Kumari Kanya
Tamil	: Kattalai, Sotthukkatal Bhottu-Katrazhae, Kottaalai Chirkuttali
Telugu	: Musambaramu, Kalabanda
Urdu	: Musabbar, Ailva, Sibr, Ghikwar.[8-12]

(a) (b)

Figure 1: *Elva* plants

Figure 2: *Elva* (Dried aloe)

Chemical Constituents

There are many chemical constituents derived from Sibr such as; Acidic galactan, Arabinans, Glucogalactomannan, Glucomannan, Polyuronide, Cellulose, 7-Hydroxyaloin, Aloe-emodin, Aloesaponarin I&II, Aloin A and B (barbaloin), Anthranol, Beta barbaloin, Chrysophanol, Chrysophanol glucoside, Isobarbaloin, Capric acid, Hexadecadienoic acid, Palmitleic acid, Stearic acid, β-Carotene, Choline, Folic acid, Vitamin K, Vitamin D, Vitamin E, Arginine, Glutamic acid, Magnesium, Calcium, Zinc, Copper, Amylase, Catalase, Echitamine, Picrinine.[3, 4, 13-16]

Unani Formulations

Ayarij Feqra, Basaliqoon Kabir, Habbe Ghafis, Habbe Mudirr, Habbe Muntin Habbe Sara, Habbe Suranjan, Ayarij Loghaziya, Ayarij Loghaziya, Kohl Bayaz, Majoon Antaki, Qurs Tinkar, Zimade Jalinoos.[17-22]

Afa'al **(Actions)**

Mushil (Purgative), Mudirre Haiz (Emmenagogue), Mohallile Waram (Anti-inflammatory), Moharrike Kabid (Hepatostimulant), Munaqqie Qurooh, Mufattih-i-Sudad Saudawi, Muqawwi Meda (Stomachic-tonic), Qatile Deedan (Anthelmintic), Mujaffif (Desiccant), Qabiz (Astringent), Munawwim (Hypnotic), Mushile Sauda (Purgative of melancholic humour),Musqite Janeen (Abortificient), (Antiaging).[7, 9, 11, 23-26]

Istemalat **(Therapeutic uses)**

Bawaseer (Haemorrhoids), Inteshare Sha'ar (Hair fall), Kharishe Ain (Catarrhal/purulent ophthalmia), Deedane Ama (Antihelminthic), Dared-e-Ser (Headache), Ehtebase Tams (Amenorrhoea), Izame Tihal (Spleenomegaly), Indemale Qurooh (Wound Healing), Iltehabe Meda (Gastritis),Yarqan (Jaundice), Malankholia (Malancholia), Nawaseer (Nasal polyps), Nafsuddam (Haemoptysis), Qabz (constipation), Shiqaqe Miqad (Fissure in Ano), Waja-ul-Mafasil (Arthritis), Warme Kabid (Hepatitis), Zoaf-e-Meda (Gastric weakness).[6, 7, 9, 11, 18, 22]

Pharmacological Studies

Aloe has varied pharmacological activities; some of the important studies carried out are given below:

Abortifacient Activity

This study led to inquiry the impacts of *Aloe barbadensis* on the rodent's placenta utilizing gel of aloe. Trophoblastic giant cells and spongiotrophoblasts were diminished in number after *Aloe barbadensis* administration; Results indicate that the presentation to *Aloe barbadensis* throughout pregnancy not led to growth retardation, fetal demise, abortion, premature birth or teratogenic effects.[28]

Antimutagenic Effect

The antimutagenic activity of *Aloe vera* gel was tested using the Drosophila sex-linked recessive lethal test (or SLRL test). 3 days old animals were treated with a direct-acting mutagen-ethyl methanesulfonate (EMS) as positive control. The second group of the same age was firstly treated with EMS individually, and after that with *Aloe vera* gel (co-treatment). When co-treatment

with aloe was carried out experimentally, it was effective in reducing genotoxicity of the direct-acting mutagen.[29]

Antidiabetic Effect

A study was designed to evaluate the antidiabetic, antihyperlipidemic and antioxidative activities of *Aloe vera* gel extract in diabetic and control rats. Forty male albino rats, weighing (95±5 g) were divided into four groups; group 1: ordinary control, group 2: Diabetic control group (by Intraperitoneal infusion of alloxan 100 mg/kg body weight), group 3: normal rats *Aloe vera* gel extract (0. 5 ml/day for 5 weeks) and group 4: diabetic rats given *Aloe vera* gel extract (0. 05) in treated diabetic groups as contrasted and diabetic control group. The results showed that an *Aloe vera* gel extract contained an appreciable amount of (Cr, Mn and Zn) which potentiate the antidiabetic activity of this plant.[30]

Antimicrobial Effect

Antimicrobial effect was assessed by the presence of zones of hindrance. Both the gel and the leaf repressed the development of *S. aureus* and just gel repressed the development of T. mentagrophytes while the leaf owns inhibitory activity for both *P. aeruginosa* and *C. Albicans*.[31] Antibacterial activity of *Aloe barbadensis* Miller (*Aloe Vera*) was tested against bacterial strains; *Escherichia coli, Bacillus subtilius, Salmonella typhi, Pseudomonas, Klebsiella pneumonia* and *Staphylococcus epidermidis*. The methanolic extract of *Aloe vera* was resulted the greatest antibacterial effect as other solvent extracts. Some fractions were tested in which fraction 8 possessed greatest antibacterial actions against all aforementioned bacterial strains.[32] Aqueous, ethanol and acetone were used to extract the bioactive compounds from the leaves of *Aloe vera* to screen the antimicrobial action selected human clinical pathogens by agar diffusion technique. The greatest antibacterial actions were observed in acetone extracts (12±0.45nm, 20±0.35nm, 20±0.57nm and 15±0.38nm) other than aqueous extracts and ethanol extracts.[33] Antibacterial action of *A. vera* was investigated against E. *coli, Enterobacter aerogens*, *Staphylococcus* sp, *Proteus mirabilus*, *Pseudomonas* sp., *Shigella, Salmonella* sp. Around the three bacterial organisms inhibition was observed in Staphylococcus sp, *Enterobacter aerogens* and *Klebsiella* sp. Antibacterial action of *A. vera* was tested against *Staphylococcus aureus, Streptococcus pyogenes, Pseudomonas aeruginosa* and *E. coli*. *A. vera* leaf gel can restrain the development of two gram positive microscopic organisms *Shigella flexneri* and *Streptococcus pyogenes*. Particular plant compound, for example, anthroquinones and dihydroxy anthroquinones and also Saponins have been proposed to have direct antimicrobial activity.[34]

Antifungal Activity

Aloe vera leaves gel was evaluated for their antifungal activity at 0.15%, 0.25% and 0.35% concentration against five plants pathogenic fungi viz., *Aspergillus niger, Aspergillus flavus, Alternaria alternata, Drechslera hawaiensis and Penicillum digitatum* 0.35% concentration *Aloe vera* gel fully inhibited the development of *Drechslera hawaiensis* and *Alternaria alternate*.[35]

Antiviral Activity

In this study antiviral activity of a crude hot glycerine extract of *Aloe vera* gel against HSV-2 replication in Vero cell line. The extract shows antiviral activity against HSV-2 not only before attachment and entry of the virus into the Vero cells, but also in post attachment stages of virus replication.[36]

Anti-inflammatory Activity

The bradykinin-induced contraction of the isolated ileum was investigated in the presence of *the Aloe barbadensis Mill*. gel (part F-1) and with the division acquired by precipitation of the F-1 with 55% ammonium sulfate (F-55), the maximal reactions to bradykinin were decreased by 10 and 22%, separately. Besides, decontamination of the F-55 by filtration through a section of Sephacryl (S-500-HR) yielded the F-SH portion, which hindered the bradykinin impact by 60%. Plainly, *Aloe barbadensis* gel holds a material that represses the bradykinin effect, which may explain the anti-inflammatory activity of *Aloe barbadensis*.[37]

Anti-Ulcer Activity

The anti ulcer effect of *A. vera* in non-steroidal anti-inflammatory drug (indomethacin) induced peptic ulcer was observed in animals. *Aloe vera* shows statistically significant anti-ulcer activity as well as to standard drug omeprazole.[38]

Anxiolytic Activity

Aloe vera was assessed for CNS activity in mice and distinctive behavioral activities for anxiety and depression were investigated on exploratory movement, Open field test, Swimming–induced Depression test, Stationary Rod, Cage Crossing and Inclined Plane test. *Aloe vera* was regulated orally in both genders of mice and was found to cause significant depression in general and additionally exploratory behavioral profiles. The results showed that *Aloe vera* created a decrease of Exploratory and Locomotor activities on top of the huge reduction in traction in a slanted plane test. The effects recommend that *Aloe vera* may have anxiolytic as well as sedative actions.[39]

Antioxidant Activity

The effects of exudate of *Aloe barbadensis* leaves on oxidative stress and some antioxidant status of streptozotocin induced - diabetic rats were tested. This study demonstrates that high glucose leads to increased oxidative stress and exudates of *Aloe barbadensis* leaves shows antioxidant action as indicated by increase scavenging SOD activity and decreased in lipid peroxidation levels.[40]

Antitumour Activity

Antitumor action of 50% ethanolic extract (100 mg/kg) of *Aloe vera* was assessed against Ehrlich ascites carcinoma (EAC) tumor in mice. Medicine with *Aloe vera* restored the serum biochemical parameters towards typical levels and diminished the levels of lipid peroxidation and expanded the levels of decreased glutathione and other cancer prevention agent compounds (SOD, CAT and Gpx). The 50% ethanolic extract of *Aloe vera* possessed antitumor impact by adjusting lipid peroxidation and enlarging cell reinforcement barrier framework in EAC bearing mice.[41]

Asthma

An open study (n = 33) was evaluated for long-term oral administration of aloe may have benefits for some people with chronic asthma, as one-third of subjects reported improvement.[42]

Cardiac Activity

Aloe vera gel (100 and 200 mg/kg) given orally for 10 days shows a significant protection against cardiotoxicity induced by superoxide dismutase (SOD) demonstrate by significant decreases in serum LDH, serum CPK, heart lipid peroxides, tissue catalase and tissue SOD and high levels of blood and tissue GSH.[43]

Haemodynamic Activity

The antisickling properties of the leaf and gel extracts of the *Aloe vera* plant were tested. The determination of the antisickling impacts of these extractions was steered towards the hindrance of sickle cell polymerization and the change of the Fe^{2+}/fe^{3+} proportion of Hank's Balanced Salt solution (HBSS) in the presence of the extracts. The relative percent restraint of sickle hemoglobin polymerization by the extract ranged from 77.93% for the crude aqueous extract (CAE) of the gel to 80.86% of that of the leaves. The CAE portion of both gel and leaf, enhanced the Fe^{2+}/fe^{3+} proportion of 46.98% for the gel to 78.0% for the leaf extracts respectively.[44]

Hypolipidemic Effect

Aloe vera gel administered orally at the dose of 300 mg/kg bodyweight for daily to STZ-induced diabetic rats for a time of 21 days brought about a noteworthy decrease in fasting blood glucose, hepatic transaminases (aspartate aminotransferase and alanine aminotransferase), plasma and tissue (liver and kidney) cholesterol, triglycerides, free greasy acids and phospholipids and a huge change in plasma insulin.[45]

Hepatoprotecitive Activity

Different fractions, Petroleum ether (AB-1), Chloroform (AB-2) and methanol (AB-3); were extracted from *Aloe barbadensis*. Out of two dynamic extracts (AB-3 and AB-4), the most potent AB-4 was researched in detail. The present study demonstrates that the aqueous extract of *Aloe barbadensis* is basically competent for restoring integrity of hepatocytes demonstrated by change in physiological parameters, excretory point of confinement of hepatocytes and similarly by stimulation of bile stream release.[46] In another study the extracts of *Aloe barbadensis* and *Allium sativum* on paracetamol-induced hepatotoxicity were tested at a dose of 200, 400 and 800 ug//body weight in Albino rats. The studies demonstrate noteworthy changes in biochemical parameters, for example, liver enzymes (AST, ALT and ALP) and Haematological parameters (Total protein, egg whites and Bilirubin). Induction of ethanolic extracts caused a significant reversal ($p<0.05$) of these impacts in a concentration dependent manner.[47]

Laxative Effect

The laxative effect of *Aloe* species is due to the presence of anthranoid glycosides derivatives, mainly aloin. *A. ferox* resin extract increases the gastrointestinal motility.[48]

Immunomodulatory Effect

The evaluation of immunomodulatory action on specific and nonspecific immunity was tested by administration of extracts of leaves of *Aloe vera* Linn. Humoral antibody response reaction to SRBC estimation of antibody titre by haemagglutination reaction was carried out and cellular immune response (Foot pad reaction test) the edema was induced in the right paw of mice by infusing SRBC (0.025x109 units) in the sub planar region. Pyrogallol-induced suppression of humoral and additionally cell mediated immune response was altogether weakened by every day oral medication with saline extract of *Aloe vera*. Vitamin E treated group showed attenuation of the suppression in immune responses. *Aloe vera* extract at the dosage of 100 mg/kg was found to suppress delayed type hypersensitivity response induced by SRBCs in mice.[49]

Aloe supplement at an everyday level of 0.70 ml/kg body weight significantly expanded the blood parameters of nonspecific immunity (rate of phagocyting cells, phagocytic index, rate of nitro blue tetrazolium-diminishing cells, and lysozyme movement).[50]

Protective Effect on Nephrotoxicity

Aqueous leaf extract of *Aloe barbadensis* (AEAB) on gentamicin and Cisplatin-induced nephrotoxic Wistar rats shows protective effects. In the gentamicin nephrotoxic rats, 100-200 mg/kg body weight for every day altogether lessened elevation in the serum creatinine, absolute protein and blood urea nitrogen levels dose related fashion and ions, and attenuated the gentamicin-induced tubulonephrosis.[51]

Wound Healing Effect

A study was designed to assess the wound healing properties of *Aloe vera (Aloe barbadensis)* on cutaneous wounds. The injuries

of the treated animals demonstrated a better alignment, less inflammatory cell infiltration and fundamentally enhanced biomechanical properties on day 20 ($P<0.05$). These effects proposed that application of *Aloe vera* aqueous extract on open wounds prompts significant wound contraction and quickens healing.[52]

Effect on Skin

The therapeutic efficacy of the plant extract was assessed utilizing trypan blue assay and the counting cell determination. The acquired effects demonstrated that *Aloe vera* juice could represent a natural therapeutic strategy through the topical route.[53]

Toxicity and Adverse Reactions

The dried latex from the superficial pericycle cells of *Aloe vera* has the same side effects as different peristalsis stimulating laxatives; however aloe has a more extraordinary irritant action than Senna. Aloe is contra-indicated throughout pregnancy, menstruation and hemorrhoids because of hyperemia of the pelvic organs. An overdose may cause extreme stomach agony, bleeding gastritis and inflammatory kidney diseases. However, the fresh aloe juice/gel ordinarily does not produce any side effects. Sometimes the local application of aloe gel may cause an intense skin rash, which usually soon vanishes with continued use.[54]

Aside from occasional unfavorably susceptible skin reactions in a fewer number of individuals, Aloe gel (AG) utilized topically has few if any side effects.[37] patients who applied Aloe gel is topically emulating dermal abrasion reported burning sensations and development of dermatitis on the face. Due to contamination by anthraquinones, oral AG may cause side effects of stomach cramps and the diarrhea. There have likewise been a few reports of AG bring down plasma glucose levels in laboratory animals and in people. It was hypothesized in one study that this hypoglycemic impact was interceded through the stimulation and the arrival of insulin from the beta-cells of the pancreas. Therefore, alert ought to be practiced when giving oral AG in the patients with diabetes.[55]

Prolonged administration may cause severe electrolyte imbalance and loss of potassium at last may reduce the laxative action and disturb cardiac rhythm in the patients. Larger doses cause accumulation of blood in the pelvic region and reflex stimulation of uterine muscles may induce abortion or premature birth in late pregnancy. Active constituents generally appear in milk during lactation. Because of these reasons the drug is contraindicated in pregnancy, lactation, kidney diseases and irritable bowel syndrome.[56]

Conclusion

Sibr is well known medicinal herb which is used firstly for the treatment of constipation described by Dioscorides, in his *De Materia Medica*. Used as internally and externally. At present time elva is also used for the management of different ailments viz; Sartan (Cancer) Ziabetus Shakri (Diabetes), Siman Mufrit (Obesity), Dyslipidemia, Psoriasis, Non-healing ulcer, Insanity, Dementia, Chorea, Alzheimer's disease, Melancholia, Hysteria, Piles, Epilepsy, Dysmenorrhoea etc. It is need to explore hidden effect on the basis of classical text, preclinical and clinical trial sources and need to further research cellular, molecular base level for safety and efficacy. This review will be new vistas for innovative analysis.

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Conflict of Interest

Nil.

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