

Clinical abstracts

Virus, bacteria, fungi & parasites

Immunostimulant Properties Of An Extract Isolated & Partially Purified From Aloe Vahombe

Solar S; Zeller H; Rasolofonirina N; Coulanges P; Ralamboranto L; Andriatsimahavandy AA; Rakotovao LH; Le Deaut JY

Arch Inst Pasteur Madagascar 47(1):9-39 1980

When the mice are given a hypodermic infection of unrefined Vahombe extract, the Aloe called Vahombe is a liliaceous plant growing in the South of Madagascar, they are protected against the infection caused by the Klebsiella, a pneumonia vector to man, giving rise to an experimental septicaemia in the mouse. Neither bactericide nor bacteriostatic activity has been detected yet about Aloe extract. The anti-infectious activity is proportional to the dose of extract injected, the protecting power is the greatest when the mice have been treated with Aloe, two or three days previously to the infection due to Klebsiella pneumoniae. We have determined the LD50 (Lethal dose 50) for the check batches (non-treated mice) and for the batches of protected mice. We were able to show that the previous injection developed the resistance to infection, multiplied from thirtyfold to a hundredfold. We have tackled the purification of the substance—made soluble after lyophilisation of the crude extract—by means of filtration with Sephadex G50. It would be the first time, for all we know, that a substance endowed with organism. At present we are proceeding with the purification of the active principle and contemplating trying the protective power upon virus infections as well as upon cancerous or parasitic ones.

Aloe Vera: Its Potential Use in Wound Healing & Disease Control in Oral Conditions

Moore, Timothy E

Aloe vera has been shown to enhance defense mechanisms, and it has a variety of components to help combat periodontal disease and other oral conditions. As a periodontist utilizing Aloe vera in various consistencies for the last 14 years with over 6,000 documented patients who have been treated with applications, I've observed remarkable healing, reduced edema, and pain control. There are eight main uses of Aloe vera in dental practice:

1. Applications directly to the sites of periodontal surgery.

2. Applications to the gum tissues when they have been traumatized or scratched by toothbrush-dentifrice abrasion, sharp foods, dental floss, and toothpick injuries.
3. Chemical burns are relieved quickly from accidents with aspirin.
4. Extraction sites respond more comfortably and dry sockets do not develop when Aloe vera is applied.
5. Acute mouth lesions are improved by direct application on herpetic viral lesions, aphthous ulcers, canker sores, and cracks occurring at the corners of our lips. Gum abscesses are soothed by the applications as well.
6. Other oral diseases chronic in nature respond with Lichen Planus and Benign Pemphigus. Even gum problems associated with AIDS and Leukemia patients receive relief. Migratory glossitis, geographic tongue and Burning Mouth Syndrome are improved.
7. Denture patients with sore ridges and ill-fitting dentures and partials can benefit as fungus and bacterial contamination reduce the inflammatory irritations.
8. Aloe vera can also be used around dental implants to control inflammation from bacteria contamination.

Other oral disorders such as Candidiasis, Desquamative Gingivitis, Vesiculobullous diseases, acute monocytic leukemia, hematological disorders and nutritional problems all respond to Aloe vera use. Even diabetes mellitus, Sjorgen's Syndrome, menopausal patients and medications which can cause Xerostomia or dry mouth. Interest is gathering momentum across our country as researchers are becoming interested in alternative therapy utilizing natural products versus synthetic agents. Aloe vera research is currently being undertaken at Oklahoma University, Baylor University, and Loma Linda. Lastly, it was a privilege to use Aloe vera on the bombing victims in the April 1995 disaster in Oklahoma City. The attendants, doctors and especially the injured learned that the healing capabilities of Aloe vera far exceeded their expectations in pain control and healing time reduction. Aloe vera has an unlimited future in new applications, and I sense in dentistry we are just on the cutting edge of promising utilization for anti-inflammatory procedure, antiviral, and immunological benefits for our patients.

Effect Of Aloe Vera On Herpes Simplex & Herpes Virus (Strain Zoster) **Sims, Ruth J; Zimmermann ER**

In 1970 Simms and Zimmermann performed a series of tests to determine the bactericidal potentials of Aloe vera. In testing the effect of Aloe vera gel on mycotic organisms (fungi), Sims and Zimmermann found that Aloe vera gel in percentages of 80% to 90% killed *Tinea pedis* (a causal agent in athlete's foot) and *Tinea unguium* (a causal agent in ringworm of the nails) each in about five hours time. Later, in the same year, Sims and Zimmermann tested the cytopathology of Aloe vera gel against 100 tissue cultures of both herpes simplex and herpes zoster strains of virus. The test, conducted on primary hamster kidney cultures, showed that in all 100 tissue doses Aloe vera provided virucidal against both strains within 72 hours.

Aloe Vera Gel Toothpaste

King, Ronald M; Carroll Thomas F

U.S., 6 pp. Cont.-in-part of U.S. Ser. No. 791,408, abandoned

A toothpaste compn. contains a dentifrice base which includes at least a detergent, an abrasive or polishing agent, and mixt. of Aloe vera and chlorophyll. The toothpaste compn. is useful in preventing gingivitis, controlling plaque, and stimulating the growth of new tissue while reducing the hazards of bacterial contamination. Thus, a dentifrice contained 25% oil of wintergreen soln. 90.0 mg, sorbitol 9.0, SDS 30.0, CaHPO₄ 30.0, glycerin 37.5, water 100.0, carrageenan 7.5, CaCO₃ 60.0, Aloe vera gel 50 g, and Cu chlorophyllin (50 mg/cm³) 250 mg. Use of this toothpaste for 10-14 days reduced the bleeding point in patients with gingivitis.

Aloe Emodin & Other Anthraquinones & Anthraquinone-Like Compounds From Plants Virucidal Against Herpes Simplex Viruses Sydiskis RJ; Owen DG, 1987

Microbiology Abstracts A Industrial and Applied Microbiology - A method is described of treating type 1 or type 2 herpes simplex virus comprising the successive steps of topically applying to the virus-affected areas of a person suffering from said virus, a topically effective amount of an anthraquinone-containing plant extract, said extract obtained from the group consisting of the gel, sap or leaves of Aloe vera, the bark of Rhamnus frangula, the bark of Phramnus purshiana, the leaves of Cassia angustifolia, and the rhizomes of Rheum rhaponticum; and repeating said topical application as required until the desired anti-viral effect is observed.

Bacteriostatic Property Of Aloe Vera Lorenzetti, Lorna J; Salisbury, Rupert; Beal, Jack; Baldwin, Jack *Journal Of Pharmaceutical Sciences* 1964. Vol. 53. p. 1287

In 1963 Lorna Lorenzetti et al. found that freshly freeze-dried Aloe vera gel was bacteriostatic against Staphylococcus 209, Staphylococcus pyogenes, and various forms of Salmonella and Shigella bacteria.

Report Of Effect Of Aloe Vera On Certain Micro-Organisms Sims, Ruth M; Zimmermann ER

Dr. E. R. Zimmermann and Dr. Ruth Sims of Dallas Microb tested Aloe vera for its germicidal potentials against a number of organisms, including one fungal and two viral agents. The viral agents were staphylococcus aureus (the most virulent strain of staph infection), and Strep viridans (a highly pathogenic strain of strep virus). The fungal agent was the now infamous Candida albicans, a monial fungus that infects the mucous membranes, most notably the mouth, throat and vaginal areas. Additionally, Aloe vera was tested against Corynebacterium xerosis, a parasitic bacteria present in such skin pathologies as seborrhea. The organisms were tested in culture mediums ranging from solutions containing 25% Aloe vera Gel to solutions containing 90% Aloe vera gel. After thorough testing, Sims and Zimmermann offered the following conclusions:

“Incorporation of Aloe vera at a concentration of 70% would appear highly efficient at reducing skin contaminants S. aureus, S. viridans, and C. zerosis. And an even lower

concentration (50%) is sufficient to greatly diminish the population of yeast cells (*C. albicans*).”

Protective Effect Of Extracts From Aloe Vera L. Var. Chinensis (Haw.) Berg. On Experimental Hepatic Lesions & A Primary Clinical Study On The Injection Of In Patients With Hepatitis

Fan YJ; Li M; Yang WL; Qin L; Zou J

Chung Kuo Chung Yao Tsa Chih 14(12):746-8 1989 Dec

The injection (10-15 ml/kg/d, ip x 4), total glycoside (125-225 mg/kg/d, ip x (3-4); 600 mg/kg/d, ig x 3) and crystal III (120 mg/kg/d, ip x 4) of Aloe vera var. chinensis were found to be effective in lowering the elevated sGPT induced by CCl₄, thioacetamide and D-aminogalactose in mice or rats. It was also observed that these agents could protect hepatic cells from the CCl₄-induced injury. When dogs were given the Aloe injection of 0.1 ml/kg/d x 180, no toxicity was noted. The total effective sGPT-lowering rate of Aloe injection on 38 patients of chronic hepatitis with positive HBsAg was 86.8%.

Tissue Therapy In Cutaneous Leishmaniasis

Filatov VP

American Review Of Soviet Medicine 1945. pp. 484-489

Reported in 1945, Aloe vera gel was effective in combating cutaneous leishmaniasis. Cutaneous leishmaniasis is also known as the oriental sore or the Delhi sore and is a skin disease spread by sandflies that produces crusty, papular lesions. The infection is apparently brought on by a pernicious strain of protozoan, but Filatov was able to determine that its progress had been arrested by Aloe vera.

Report Of Effect Of Aloe Vera On Growth Of Certain Micro-Organisms

Sims RM; Zimmermann ER

Baylor College Of Dentistry / Dallas Microb—Assay Services

In 1969 Dr. Ruth Sims and Dr. E.R. Zimmermann expressed the hypothesis that it was the proteolytic enzymes that carried the bulk of Aloe’s curative power, especially in the elimination of dead or infected tissue.

Effectiveness Of Undiluted Aloe Gel Against Trichomonas Vaginalis

Sims, Ruth M

Dallas Microb-Assay Service

Performed a bacteriological study in 1971 testing 100% Aloe vera gel against *Trichomonas vaginalis*. More commonly known as trichomona, this is one of the most prevalent forms of female vaginal infections known today. In tests conducted for a duration of 72 hours, Dallas Microb—Assay found that the Aloe vera gel was 100% effective in killing the trichomona parasite.

A Bacteriological Study Shupe-Ricksecker, Kathleen

In 1994 a biologist and assistant professor at the University of Dallas, Dr. Shupe recently undertook a series of in vitro bacteriological examinations testing various percentages of Aloe vera solutions against tissue cultures of four common pathogens – *Streptococcus pyogenes*, *Staph aureus*, *Pseudomonas aeruginosa* (*pseudomonas*) and *Escherichia coli* (more popularly known as *E. coli*). *Strep pyogenes* are particularly known to be present in cross-infections and side-infections from improper wound healing, as are *pseudomonas*. *Pseudomonas aeruginosa* are also present in a number of secondary urinary tract infections in men and is commonly found as a second microorganism present in prostatitis. *E. coli* is a potent bacteria common to the rectal cavity of every living mammal. Well behaved in that singular context, once it is released and exposed to outside air it can wreak absolute havoc especially when exposed to wounds, mucous membranes or adjacent to foodstuffs such as meat. Uncaught and untreated, *E. coli* can be one of the most dangerous bacteria known to medicine.

In her findings, Dr. Shupe noted that all these microorganisms were killed within twenty four hours of exposure to high levels of Aloe vera (85%). The *Strep pyogenes* and *Staph aureus* strains were virtually killed (99.5%) within the twenty four hour period. The more resistant strains, *E. Coli* and *pseudomonas*, were killed upon an increase of Aloe percentages to 90%, and at that there was a 90% bactericidal ratio in the same period of time.

Dr. Shupe studies the germicidal effects of Aloe vera on *Propionibacterium acnes* (ATCC strain 6919). This is a causal agent in the formation of acne, often resulting from the introduction of a comedogenic agent such as an improper oil-base ingredient to the skin. In vitro testing with samples using various percentages of Aloe vera revealed that a 100% killing ratio against the bacteria could be achieved within that twenty four hour period.

Effect Of Aloe Vera Gel On Mycotic Organisms Sims R; Zimmermann ER

In 1970, a set of tests were performed on the effect of Aloe vera gel on Mycotic organisms (fungi). In these experiments, the organisms tested were *Trychophyton mentagrophytes* (also known as *tinea pidea*, the prime cause of athlete's foot), and *Trichophyton rubrum* or *Tinea unguim* (the cause of nail fungus and ringworm of the nails). Testing in agar plate samples, Sims and Zimmermann found that Aloe vera gel in percentages of 85% or more killed these persistent and difficult to treat fungi.

Inactivation Of Enveloped Viruses By Anthraquinones Extracted From Plants

Sydiskis RJ; Owen DG; Lohr JL; Rosler KH; Blomster RN

Department Of Microbiology, University Of Maryland

Antimicrob Agents Chemother 35(12):2463-6 1991 Dec

To determine the extent of antiviral activity present in a number of plant extracts, hot glycerin extracts were prepared from *Rheum officinale*, *Aloe barbadensis*, *Rhamnus frangula*, *Rhamnus purshianus*, and *Cassia angustifolia* and their virucidal effects were tested against herpes simplex virus type 1. All the plant extracts inactivated the virus. The active components in these plants were separated by thin-layer chromatography and identified as anthraquinones. A purified sample of Aloe emodin was prepared from aloin, and its effects on the infectivity of herpes simplex virus type 1 and type 2, varicella-zoster virus, pseudorabies virus, influenza virus, adenovirus, and rhinovirus were tested by mixing virus with dilutions of Aloe emodin for 15 min at 37 degrees C, immediately diluting the sample, and assaying the amount of infectious virus remaining in the sample. The results showed that Aloe emodin inactivated all of the viruses tested except adenovirus and rhinovirus. Electron microscopic examination of anthraquinone-treated herpes simplex virus demonstrated that the envelopes were partially disrupted. These results show that anthraquinones extracted from a variety of plants are directly virucidal to enveloped viruses.

Immunostimulating Properties Of An Extract Isolated From Aloe Vahombe.

2. Protection In Mice By Fraction F1 Against Infections By Listeria

Monocytogenes, Yersinia Pestis, Candida Albicans & Plasmodium Berghei

Brossat JY; Ledeaute JY; Ralamboranto L; Rakotovaio LH; Solar S; Gueguen A;

Coulanges P

Arch Inst Pasteur Madagascar 48(1):11-34 1981

A partially purified extract of leaves of *Aloe vahombe*, a plant endemic in the south of Madagascar, administered intravenously to mice, protects them against infection of bacteria (*Listeria monocytogenes*, *Yersinia pestis*), parasites (*Plasmodium berghei*) and fungus (*Candida albicans*). The protective fraction must be administered two days before inoculation of the pathogenic agent. These results significantly confirm those we obtained in earlier study on mice infection by *Klebsiella pneumoniae*. Currently we are testing the protective action of the purified extract on the experimental development of sarcomas, and we are in the process of analyzing the mode of action of this non specific immunostimulant.

Aloe Vera

Klein AD; Penneys NS

Department Of Dermatology, University Of Miami School Of Medicine

J Am Acad Dermatol, 18(4 Pt 1):714-20 1988 Apr

We reviewed the scientific literature regarding the Aloe vera plant and its products. Aloe vera is known to contain several pharmacologically active ingredients, including a carboxypeptidase that inactivates bradykinin in vitro, salicylates, and a substance(s) that inhibits thromboxane formation in vivo. Scientific studies exist that support an antibacterial

and antifungal effect for substance(s) in Aloe vera. Studies and case reports provide support for the use of Aloe vera in the treatment of radiation ulcers and stasis ulcers in man and burn and frostbite injuries in animals. The evidence for a potential beneficial effect associated with the use of Aloe vera is sufficient to warrant the design and implementation of well-controlled clinical trials.

Additional Studies Showing Anti-Viral Effects

In addition to culture studies done outside the body on HIV-1, studies done at the Fort Worth Medical Complex demonstrated Aloe vera mucopolysaccharides were anti-viral against herpes, measles and rhinotracheitis when used at the correct dose.

Immunomodulating Properties Of An Extract Isolated & Partially Purified From Aloe Vahombe Study Of Antitumoral Properties & Contribution To The Chemical Nature & Active Principle

Ralamboranto L; Rakotovao LH; Le Deaut JY; Chaussoux D; Salomon JC; Fournet B; Montreuil J; Rakotonirina-Randriambeloma PJ; Dulat C; Coulanges P

Arch Inst Pasteur Madagascar 50(1):227-56 1982

An immuno-modulator fraction (Alva) extracted from an endemic plant, in the south of Madagascar, the Aloe vahombe, significantly protects mice against bacterial, parasitic and fungal infections. Wishing to verify whether the fraction Alva was active in tumour reduction, we studied its effect on the development of experimental fibrosarcoma and melanoma in mice by intravenous and intracutaneous injections and injections directly into the tumor of the immunostimulant fraction. We have observed cures, only in the case of the McC3-1 tumor but it is encouraging to note that under different experimental conditions the rate of growth of tumors in animals which were treated is slower than in those not treated. The Alva fraction is a substance which is hydrosoluble, thermostable, having a molecular weight exceeding 30,000 and is a polysaccharide. The predominant sugars are glucose and mannose in 3:1 ratio. Preliminary studies of its action seem to indicate that the Alva fraction acts upon nonspecific response and could possibly stimulate the phagocyte activity of the peritoneal macrophagus.

Antipruritic & Fungicidal Effects Of Aloe

Drs. Ruth Sims and Eugene Zimmermann, two research Ph.D.'s studying the effects of an 80% Aloe vera solution for its anti-pruritic and fungicidal effects against a number of common maladies such as sunburn, skin rashes, poison ivy, and pruritus ani and pruritus vulvae. An effective antipruritic stops itching and irritation, a fungicide as the name implies effectively kills fungus, the Aloe solution accomplished both tasks to maximum positive effect.

Dr. Jean Setterstrom tested Aloe against the same microorganisms. In that test, using the same criteria, Dr. Setterstrom found Aloe vera gel even more effective than those of the Sims/Zimmermann tests. In fact, the Aloe killed the same microbes in lower concentrations on an even shorter time scale (16 hours versus 24 hours for the Sims/Zimmermann tests).

Dr. Setterstrom also tested Aloe against a strep bacteria strain called *Streptococcus mutans*. In her testings, Dr. Setterstrom allowed the Strep mutans to form a culture on the enamel then introduced the Aloe vera solution at a relatively low level of just 40%. Even at that level, after just a few hours, all the plaque formed by the Strep mutans had fallen to the bottom of the tubes – literally dropped off!

Anthraquinones In Aloe Vera

D'Amico, Maria Luisa

Fitoterapia 1950 Vol 21, pp. 77-79. Chemical Abstracts – G.A. Bravo 1950. Vol 44, pp. 11035-11036

In 1949, G.A. Bravo, comparing anthraquinones in the human intestines to their action in Aloe vera, added barbaloin, isobarbaloin, and anthranols to the list. And the next year, Italian research scientist, Maria Louisa D'Amico, found the anthraquinones in Aloe vera to contain pronounced antibiotic properties.

Aloe Vera Controls The Amount Of Juice & Neutralizes Acidity

Prof. Hisayuki Yazawa and his group at Shizuoka Medical College witnessed an increase in the amount of gastric juice and gastric acid discharge by use of barbaloin.

Again, Dr. Bland at Science and Medicine Inst., California testified that oral administration of Aloe vera controls the amount of juice and neutralizes acidity. He verified also that Aloe vera can balance the amount between bacteria in the digestive tracts, and help protein digestion.

Aloe Vera To Treat Gastrointestinal Problems

Bland J

Journal of Alterative Medicine, 1985

Jeffrey Bland, Ph.D., formerly of the Linus Pauling Institute, reported using a concentrate of Aloe vera to treat gastrointestinal problems. The objectives of Dr. Bland's study were "to evaluate the effect of oral Aloe vera juice supplementation of gastric pH, stool specific gravity, protein digestion/absorption, and stool microbiology" and found that it could be used in "the treatment of inflammatory bowel disorders."

In his patient application studies of ten healthy subjects (five women and five men), Dr. Bland first found that the Aloe vera juice provided caused his subjects no covert or overt adverse effects and was in general "well tolerated" by all ten people in the study group. In his study of five women and five men, Dr. Bland was careful to note that: "...with the taking of two-ounce increments [of the Aloe vera juice] three times daily for seven days no patient among the... (five men, five women) complained of diarrhea... four of the subjects reported improved bowel regularity with greater gastrointestinal comfort after eating... three indicated an enhancement of energy and a greater sense of well being..."

Additionally, he reported that: “The function of Aloe vera juice in promoting proper gastrointestinal function based upon the information from this preliminary study may be to regulate gastrointestinal pH while improving gastrointestinal motility, increasing stool specific gravity and reducing the populations of certain fecal micro-organisms, including yeast [*Candida albicans*]. This could have significant advantages to some individuals by promoting proper dietary protein digestion and absorption and reducing bowel putrefactive processes in the colon.”
