

# Clinical abstracts

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## Miscellaneous studies

### **Prevention Of Atheromatous Heart Disease**

**Agarwal OP**

*Angiology Aug 1985, 36(8) p485-92*

Five thousand patients of atheromatous heart disease, presented as angina pectoris, were studied over a period of five years. After adding the "Husk of Isabgol" and Aloe vera (an indigenous plant known as ghee-guar-ka-patha) to the diet, a marked reduction in total serum cholesterol, serum triglycerides, fasting and post prandial blood sugar level in diabetic patients, total lipids and also increase in HDL were noted.

Simultaneously the clinical profile of these patients showed reduction in the frequency of anginal attacks and gradually, the drugs, like verapamil, nifedipine, beta-blockers and nitrates were tapered. The patients, who most benefited, were diabetics (without adding any antidiabetic drug). The exact mechanism of the action of the above two substances is not known, but it appears that probably they act by their high fibre contents. Both these substances need further evaluation. The most interesting aspect of the study was that no known side effect was noted and all the five thousand patients are surviving till date. Patients are being followed up for five years and no Indian plant has ever been tried with such success. So this is a unique study of its own type.

To conclude, the Indian plant Aloe vera, when mixed with the Husk of Isabgol, was given to the patients of atherosclerotic heart disease, there was a definite and substantial improvement (about 95%) in their clinical profile apart from bio-chemical changes and ECG tracings.

### **Hypolipidemic Effect Of Aloe-Barbadensis Aloe FractionI In Cholesterol Fed Albino Rats I. Lipid & Lipoprotein Metabolism**

**Joshi S; Dixit VP**

Reprod. Physiol. Sect., Dep. Zool., Univ. Rajasthan

*Proc Natl Acad Sci India Sect B (BIOL SCI) 56 (4), 1986, 339-342*

Al. Fr. I feeding (isolated from the leaves of Aloe barbadensis) lowers serum cholesterol, triglycerides, phospholipids, and NEFA in hyperlipidaemic rats. While Al. Fr. I significantly increases the HDL-Cholesterol which is a negative risk factor for atherosclerosis. Marked increase in HDL-Cholesterol/Total cholesterol ratio and a significant decrease in total

cholesterol/phospholipid ratio is indicative of reducing risk in patients suffering from coronary arteriosclerosis.

### **Antioxidant & Radical Scavenging Effects Of Anthraquinones & Anthrones Malterud KE; Farbrot TL; Huse AE; Sund RB**

Department Of Pharmacognosy, University Of Oslo  
*Pharmacology 47 Suppl 1():77-85 1993 Oct*

The activity of seven anthraquinones and four anthrones against nonenzymatic and enzymatic lipid peroxidation in vitro and their ability to scavenge free radicals have been studied. In nonenzymatic peroxidation in rat hepatocytes induced by t-butyl hydroperoxide, dithranol and anthrone were the strongest antioxidants, having IC<sub>50</sub> values of 8 +/- 1 and 24 +/- 5  $\mu\text{mol/l}$ , respectively. Rhein (IC<sub>50</sub> 64 +/- 2  $\mu\text{mol/l}$ ) and Aloe-emodin (IC<sub>50</sub> 65 +/- 3  $\mu\text{mol/l}$ ) showed the highest inhibitory activity against peroxidation of linoleic acid catalyzed by soybean 15-lipoxygenase. Anthrone (IC<sub>50</sub> 62 +/- 2  $\mu\text{mol/l}$ ), dithranol (IC<sub>50</sub> 72 +/- 1  $\mu\text{mol/l}$ ) and rhein anthrone (IC<sub>50</sub> 76 +/- 6  $\mu\text{mol/l}$ ) were the most effective radical scavengers of the diphenylpicrylhydrazyl radical. The antioxidant activities in hepatocytes and the radical scavenging activities were correlated, whereas the inhibition of enzymatic lipid peroxidation showed no correlation with the two other effects.

### **Lowered Blood Pressure**

Dr. Collier and his group at Medical Institute, England testified Aloe promoted prostaglandin's biosynthesis, causing peripheral veins to expand so that blood pressure can get lowered.

Dr. Afzal and his Arabian group confirmed the above phenomenon using Aloe vera.

### **Aloctin A, Active Substance Of Aloe Arborescens Miller As An Immunomodulator**

**Imanishi K**

Department Of Microbiology & Immunology, Tokyo Women's Medical College  
*Phytotherapy Research (1993) Vol 7, No. Special issue, pp. S20-S22. 15 ref.*

Aloctin A (Alo A), an active substance isolated from the leaves of *A. arborescens*, has many biological and pharmacological activities, such as mitogenic activity for lymphocytes, binding of human alpha 2-macroglobulin, complement activation via the alternative pathway, anti-inflammatory activity, anti-ulcer activity and antineoplastic activity. Alo A exhibited immunomodulatory activities on the immune responses of murine and human lymphoid cells in vivo and in vitro.

## **Purification & Characterization Of Two Lectins From Aloe Arborescens Mill.**

**Suzuki I; Saito H; Inoue S; Migita S; Takahashi T**

*J Biochem (Tokyo) 85(1):163-71 1979 Jan*

Two lectins have been isolated from leaves of Aloe arborescens Mill by salt precipitation, pH-dependent fractionation and gel filtration. One lectin (P-2) has a molecular weight of approximately 18,000, consists of two subunits (alphabeta) and contains more than 18% by weight of neutral carbohydrate. The smaller subunit (alpha) has a molecular weight of approximately 7,500 and the larger subunit (beta) a molecular weight of approximately 10,500. The other lectin (S-1) has a molecular weight of approximately 24,000, consists of two subunits (gamma2) with a molecular weight of approximately 12,000 and contains more than 50% by weight of neutral carbohydrate. An interesting feature of the amino acid compositions of these lectins is the high proportion of acidic amino acids, such as aspartic acid and glutamic acid, and the low proportion of methionine and histidine. S-1 has a strong hemagglutinating activity. On the other hand, P-2 has not only hemagglutinating activity but also mitogenic activity on lymphocytes, precipitate-forming reactivity with serum proteins, one of which is alpha2-macroglobulin, and complement C3 activating activity via the alternate pathway.

## **Anti-Inflammatory C-Glucosyl Chromone From Aloe Barbadensis**

**Hutter JA; Salman M; Stavinoha WB; Satsangi N; Williams RF; Streeper RT;**

**Weintraub ST**

Department Of Pharmacology, Research Imaging Center, University Of Texas Health Science Center

*J Nat Prod Vol 59, ISS 5, 1996, P541-3*

A new anti-inflammatory agent identified as 8-[C-beta-D-[2-O-(E)-cinnamoyl]glucopyranosyl]-2- [(R)-2-hydroxypropyl]-7-methoxy-5-methylchromone (1) has been isolated from Aloe barbadensis Miller. At a dose of 200 microg/mouse ear, 1 exhibited topical anti-inflammatory activity equivalent to 200 microg/ear of hydrocortisone. There was no reduction in thymus weight caused by treatment with 1 for any of the doses tested, while 200 microg/ear of hydrocortisone resulted in a 50% decrease in thymus weight.

## **Biotransformation Of Aloenin, A Bitter Glucoside Constituent Of Aloe Arborescens By Rats**

**Hirata T; Sakano S; Suga T**

*Experientia 37(12):1252-3 1981 Dec 15*

Aloenin has been established to be 4-methoxy-6-(2-beta-D-glucopyranosyloxy-4-hydroxy-6-methylphenyl)-2-pyrone; it shows an inhibitory activity for gastric juice secretion. Rats metabolized it to 4-methoxy-6-(2,4-dihydroxy-6-methylphenyl)-2-pyrone, 2,5-dimethyl-7-hydroxychromone and glucose, which were excreted in the feces and the urine. The distribution of the radioactivity originating from <sup>14</sup>C-labeled aloenin was studied. The tracer found in the kidney and the liver reached 60% of the amount administered 24 h after feeding and decreased rapidly in the next 24 h.

## **Biologically Active Constituents Of Leaves & Roots Of Aloe Arborescens Var. Natalensis**

**Hirata T; Suga T**

*Z Naturforsch [C], 32(9-10):731-4 1977 Sep-Oct*

Several biologically active substances, such as aloenin (1), magnesium lactate, Aloe-emodin (4), barbaloin (5), and succinic acid, were found to be contained in the leaf juice of Aloe arborescens Mill. var. natalensis Berger, which has widely been used in domestic medicines. Aloenin (1) and magnesium lactate were elucidated to exhibit an inhibitory action on the gastric juice secretion of rats. Various constituents other than the above bioactive substances were found in the leaves and the roots of the plant.

## **Effect Of Aloe & Colfibrate On Serum Lipids In Hyperlipidemia In Presbytis Monkeys**

**Dixit VP; Joshi S**

Department Of Zoology, University Of Rajasthan, 1983

Studies were made to gauge the “Effect of Aloe (barbadensis) and Colfibrate on Serum Lipids in Hyperlipidemia in Presbytis Monkeys.” The doctors ran a series of blood tests on a sample test group of monkeys with high levels of fat and cholesterol in the blood to determine the before and after affects of having introduced juice from the whole leaf of Aloe vera, ground at room temperature and set to a purification level of 40°C.

Two separate test groups of 5 monkeys were captured, weighed and fed, then fasted and injected with Triton WR as a means of increasing blood level cholesterol. After 72 hours, the blood was then withdrawn to determine what is referred to as “Zero h sampling.” After another 48 hours, another sample was taken and both were exposed to centrifuge testing to determine the level of HDL, VLDL and LDL cholesterol.

Then, Aloe vera and Clofibrate were introduced to the respective test groups and blood samples again were drawn. In all five animals tested with the Aloe vera it showed dramatic reductions in both types of LDL cholesterol and triglycerides – a rate that was about twice as effective as the comparable clofibrate treatment. In their report the Dixit, Joshi test team reported the following: “The maximum fall in the each value of the non-esterified free fatty acid was 45.5 percent with Aloe barbadensis at 24 hours as compared to 23 percent fall at 32 hours by the colfibrate treatment... Hypercholesterolemia commonly associated with coronary heart disease is correlated with an increase in the plasma LDL-cholesterol and a decrease in HDL-cholesterol concentration. Reduction in serum cholesterol caused by administration of A. barbadensis can be attributed to a reduction in LDL + VLDL-cholesterol.”

They also observed that significant rises in the HDL or good cholesterol also occurred in the Aloe test group of Presbytis monkeys. “A. barbadensis administration increased the serum HDL-cholesterol ratio which is associated with a reduced incidence of atherosclerosis in humans. A. barbadensis thus seems to be an interesting agent which could be of use in the treatment of hypercholesterolemia. Long term toxicity and tolerance studies in non-human primates are necessary before the plant can be recommended for clinical use.”

The second set of tests, again by Dixit and Joshi, involved a study in which a control group albino rats were fed high cholesterol diets, while a test group were fed polysaccharide constituents from the Aloe vera plant. Compared with the group of rats fed the high cholesterol diets without Aloe, the animals fed the consistent Aloe fraction showed the following: a) decreased total cholesterol levels, b) decreased triglyceride levels, c) decreased phospholipid levels, d) decreased non-esterified fatty acid levels, e) increased HDL cholesterol levels, and f) markedly increased HDL total cholesterol ratios.

### **Zinc Acetate & Lyophilized Aloe Barbadensis As Vaginal Contraceptive** **Fahim MS; Wang M**

Center Of Reproductive Science & Technology, School Of Medicine, University Of Missouri  
*Contraception 53(4):231-6 1996 Apr*

**T**wenty samples of fresh ejaculate, donated by healthy volunteers ranging in age from 20-30 years, were obtained from the Center for Fertility & Cryobiology, University of Missouri, Columbia, Missouri. Average semen volume was 2.49 ml; average sperm motility was 71.32%; and average sperm density was  $113.71 \times 10^6$  /ml. Testing for spermicidal effectiveness of a 1% concentration of zinc acetate, zinc sulfate, zinc chloride, and zinc gluconate proved that only zinc acetate was spermicidal. It appears this is due to the acetate in zinc acetate which may decrease oxygen utilization by sperm. Zinc acetate in vitro was antiviral while lyophilized Aloe barbadensis was not. Lyophilized Aloe barbadensis at concentrations of 7.5% and 10% proved to be spermicidal due to the multiple micro elements (boron, barium, calcium, chromium, copper, iron, potassium, magnesium, manganese, phosphorus, and zinc) which were toxic to the tail causing instant immobilization. The two compounds did not irritate or cause ulceration of rabbit vaginal epithelium. These results suggest the possibility of using zinc acetate and lyophilized Aloe barbadensis as a new, effective and safe vaginal contraceptive.

### **The Influence Of Selected Potential Oncostatics Of Plant Origin On The Protein Biosynthesis In Vitro**

**Paszklewicz-Gadek A; Chlabicz J; Galasinski W**

Dept. Of General & Organic Chemistry, Medical Academy  
*Pol J Pharmacol Pharm Mar-Apr 1988, 40(2) p183-90*

**F**ive potential oncostatics of plant origin (reserpine, amphotericin B, rutoside, digoxin, dry Aloe extract), and cyclic AMP were investigated for their effect on protein synthesis. The solutions of digoxin and dry Aloe extract inhibited protein biosynthesis in vitro. The direct inhibiting effect of digoxin on the ribosomes suggests that this drug forms an inactive complex with this organelle. Therefore it can be concluded that ribosome is the target site of digoxin action. Aloin and Aloe-emodin are responsible for the inhibitory effect of the solution of dry Aloe extract. They inhibit markedly  $[^{14}\text{C}]$ -leucine incorporation into proteins. Aloin and Aloe-emodin do not influence directly the ribosomes, but they inhibit elongation factors and peptidyltransferase activities in the complete elongation system. Some preliminary experiments have shown that direct interaction between these substances and elongation factor EF-2 should be taken in account. This observation is the subject of further experiments,

in which the characteristics of the inhibitory effect of the components isolated from dry Aloe extract will be performed.

### **The Genotoxicity Status Of Senna**

**Heidemann A; Miltenburger HG; Mengs U**

CCR Cytotest Cell Research

*Pharmacology 47 Suppl 1:178-86 1993 Oct*

**G**enotoxicity tests were performed by several laboratories with the drug fructus sennae, senna extract, sennosides, rhein and Aloe-emodin. The drug fructus sennae, the sennosides and rhein did not increase mutation frequencies in the following test systems: bacterial systems (Salmonella reverse mutation test and/or Escherichia coli forward mutation test); mammalian cell cultures [hypoxanthine guanine phosphoribosyl transferase (HGPRT) test; mouse lymphoma test; chromosome aberration test with Chinese hamster ovary cells]; bone marrow (micronucleus test; chromosome aberration test); melanoblast cells (mouse spot test) of rodents. With Aloe-emodin mutagenic effects were observed only in vitro in the chromosome aberration test with CHO cells and in the Salmonella reverse mutation test (frameshift mutations in strains TA 1537, TA 1538 and TA 98). In the in vitro gene mutation test with V79 cells (HGPRT test) no mutagenic potential of Aloe-emodin was observed. In in vivo studies [micronucleus test with bone marrow cells of NMRI mice, chromosome aberration test with bone marrow cells of Wistar rats, mouse spot test (crossing DBA/2J x NMRI) no indication for a mutagenic activity of Aloe-emodin was found. The relevance of the absence of a mutagenic potential in in vivo test systems was strengthened by the fact that Aloe-emodin could be found in the blood serum after oral administration. Additional information on the interaction of Aloe-emodin with DNA was obtained from an ex vivo unscheduled DNA synthesis test performed with hepatocytes of male Wistar rats: Aloe-emodin did not induce unscheduled DNA synthesis as expression of DNA damage.

### **Substances In Seed Plants Active Against Tubercule Bacilli**

**Gottshall RY; Jennings, CE Weller; Redman CT; Lucas EH; Sell HM**

*American Review of Tuberculosis 1950. Vol 62*

**I**n 1950 scientists from the Michigan Board of Health conducted a set of tests for its ability to inhibit tubercule bacilli, the bacterial source of tuberculosis. The evaluations by the Michigan group (Gottshall, Jennings et al), were largely positive, and projections for the use of Aloe vera in combating the bacilli were found to merit further exploration.

### **Acceleration Of The Alcohol Oxidation Rate In Rats With Aloin A Quinone Derivative Of Aloe**

**Chung JH; Cheong JC; Lee JY; Roh HK; Cha YN**

College Of Pharmacy, Seoul National University

*Biochem Pharmacol 52(9):1461-8 1996 Nov 8*

**A**loe contains abundant aloin, a C-glycoside derivative of anthraquinone. Based on recent reports indicating that the water extract of Aloe enhances the ethanol oxidation rate and also

that quinones, in general, have a functional role in elevating the alcohol oxidation rate in vivo, we have attempted to identify the quinone derivative contained in Aloe that could increase the alcohol oxidation rate. Upon oral administration of aloin (300 mg/kg) given 12 hr prior to the administration of alcohol (3.0 g/kg), the blood alcohol area under the curve (AUC) was found to be decreased significantly (by 40%). This was supported by increases in the rates of blood alcohol elimination and the disappearance of alcohol from the body by 45 and 50%, respectively. Analysis of hepatic triglyceride (TG) levels revealed that both the ethanol and the aloin treatment alone significantly increased the TG levels in a comparable manner; however, the level obtained by the combined treatment of aloin and ethanol was not statistically different from that produced by either treatment alone. The levels of serum L-aspartate:2-oxoglutarate aminotransferase (AST) and L-alanine: 2-oxoglutarate aminotransferase (ALT) activities were not increased by acute alcohol intoxication, aloin alone, or by the combined treatment of alcohol and aloin. Pretreatments with aloe-emodin, the anthraquinone aglycone of aloin, resulted in a significantly decreased blood alcohol AUC and an increase in the rate of ethanol disappearance. These results suggested that when the aloin localized primarily in the skin of Aloe is ingested, Aloe-emodin (the quinone aglycone) may be released, and the released quinone may produce acceleration of the ethanol metabolism rate in vivo.

### **Decreased Levels Of 2-Amino-3-Methylimidazo[4,5-f]Quinoline-DNA Adducts In Rats Treated With Beta-Carotene, Alpha-Tocopherol & Freeze-Dried Aloe**

**Uehara N; Iwahori Y; Asamoto M; Baba-Toriyama H; Iigo M; Ochiai M; Nagao M; Nakayama M; Degawa M; Matsumoto K; Hirono I; Beppu H; Fujita K; Tsuda H**  
Chemotherapy Division, National Cancer Center Research Institute

*Jpn J Cancer Res 87(4):342-8 1996 Apr*

To assess mechanisms of chemoprevention of hepatocarcinogenesis by trans-beta-carotene (beta-C), DL-alpha-tocopherol (alpha-T), and freeze-dried whole leaves of Kidachi Aloe (Aloe), formation of 2-amino-3-methylimidazo[4,5-f]quinoline (IQ)-DNA adducts was measured by <sup>32</sup>P-post-labeling analysis, and CYP1A1 and CYP1A2 protein levels were analyzed by ELISA. Group 1 rats were fed diet containing 0.02% beta-C, 1.5% alpha-T or 30% Aloe over an 8-day period, while group 2 was given basal diet alone. On day 7, all animals were subjected to two-thirds partial hepatectomy (PH). Twelve hours after PH, they received a single dose of the carcinogenic food pyrolysate IQ (100 mg/kg) intragastrically, to initiate hepatocarcinogenesis. Rats were killed 6, 12, 24 and 48 h after IQ administration. The levels of adducts, expressed as relative adduct labeling values in rats treated with beta-C, alpha-T and Aloe, were decreased as compared with the control group at hour 24 (36 h after PH), with a significant difference in the case of the beta-C group (46.4% of the control value). Similarly, all showed a tendency for decrease at hour 48. Furthermore, the levels of CYP1A2, known to be responsible for activation of IQ, showed a significant reduction at hour 24. It is concluded that beta-C, and possibly also alpha-T and Aloe, have the potential to reduce IQ-DNA adduct formation, presumably as a result of decreased formation of active metabolites. The results may explain, at least in part, the previously observed inhibitory effects of these compounds on induction of preneoplastic hepatocellular lesions.

## **Specific Reaction Of Aloe Extract With Serum Proteins Of Various Animals**

**Fujita K; Suzuki I; Ochiai J; Shinpo K; Inoue S; Saito H**

*Experientia 34(4):523-4 1978 Apr 15*

**W**e found that Aloe extract contains a lectin-like substance which reacts with serum proteins of various animals. Furthermore, in human serum 2 proteins, alpha2-macroglobulin and alpha1-antitrypsin, were shown to be reactive with Aloe extract.

## **Some Pharmacological Actions Of Aloe Extracts & Cassia Abbreviata On Rats & Mice**

**Parry O; Matambo C**

Department Of Physiology, University Of Zimbabwe

*Cent Afr J Med Vol 38, ISS 10, 1992, P409-14*

**T**he effects of crude extracts (500 mg/kg IP and 500-1000 mg/kg PO) of three species of Aloes and Cassia abbreviata in rats and mice were studied, particularly as regards their abortifacient actions. The LD50 values were as follows: A. globuligemma < 250 mg/kg IP; A.chabaudii 250-500 mg/kg IP; A. cryptopoda > 1500 mg/kg IP and C.abbreviata 500-750 mg/kg IP. Thus the most toxic was A.globuligemma. Their most visibly striking toxic effects in rats were CNS depression, and post mortem investigations showed widespread haemorrhagic lesions. Administration of the Aloes and A.abbreviata to pregnant mice and rats did not cause expulsion or resorption of the foetuses. Several rats died within 36 hours of injection of A.chabaudii and A.globuligemma, but even in these rats there was no expulsion or resorption of the foetuses. Rats which survived the treatment delivered normal sized, healthy litters at term. It is suggested that neither the Aloe species test nor C.abbreviata possess abortifacient activity at doses which are not toxic to the animals.

## **Inhibition Of Benzo[a]Pyrene-DNA Adduct Formation By Aloe Barbadensis Miller**

**Kim HS; Lee BM**

Division Of Toxicology, College Of Pharmacy, Sung Kyun Kwan University, Suwon City, Kyunggi-Do

*Carcinogenesis 18(4):771-6 1997 Apr*

**T**he antigenotoxic and chemopreventive effect of Aloe barbadensis Miller (polysaccharide fraction) on benzo[a]pyrene (B[a]P)-DNA adducts was investigated in vitro and in vivo. Aloe showed a time-course and dose-dependent inhibition of [3H]B[a]P-DNA adduct formation in primary rat hepatocytes (1x10<sup>6</sup> cells/ml) treated with [3H]B[a]P (4 nmol/ml). At concentrations of 0.4-250 microg/ml Aloe, the binding of [3H]B[a]P metabolites to rat hepatocyte DNA was inhibited by 9.1-47.9%. Also, in rat hepatocytes cultured for 3-48 h with Aloe (250 microg/ml) and [3H]B[a]P (4 nmol/ml), [3H]B[a]P-DNA adducts were significantly reduced by 36% compared with [3H]B[a]P alone. Aloe also inhibited cellular uptake of [3H]B[a]P in a dose-dependent manner at a concentration of 0.4-250 microg/ml by 6.3-34.1%. After a single oral administration of B[a]P to male ICR mice (10 mg/mouse), benzo[a]pyrene diol epoxide I (BPDE-I)-DNA adduct formation and persistence for 16 days

following daily treatment with Aloe (50 mg/mouse) were quantitated by enzyme-linked immunosorbent assay using monoclonal antibody 8E11. In this animal model, BPDE-I-DNA adduct formation was significantly inhibited in various organs (liver, kidney, forestomach and lung) ( $P < 0.001$ ). When mice were pretreated with Aloe for 16 days before B[a]P treatment, inhibition of BPDE-I-DNA adduct formation and persistence was enhanced. Glutathione S-transferase activity was slightly increased in the liver but cytochrome P450 content was not affected by Aloe. These results suggest that the inhibitory effect of Aloe on BPDE-I-DNA adduct formation might have a chemopreventive effect by inhibition of B[a]P absorption.

## **Effect Of Water Extracts Of Aloe & Some Herbs In Decreasing Blood Ethanol Concentration In Rats II.**

**Sakai K; Saitoh Y; Ikawa C; Nishihata T**

*Chem Pharm Bull (Tokyo), 37(1):155-9 1989 Jan*

Oral administration of ethanol to rats at a dose of 3 g/kg decreased alcohol dehydrogenase (ADH) activity and metabolism of lactate to pyruvate in the liver. The effects of water extracts of Aloe and some other herbs on blood ethanol concentration and on ADH activity in liver cytosol were examined. The water extracts of these herbs caused a faster elimination of ethanol from blood of normal rats when administered orally 30 min before oral administration of ethanol. The rapid elimination of ethanol seems to be due to a protection of ADH activity and the supply of nicotinamide dinucleotide, both of which are reduced by high ethanol concentration. The effects of ethanol in decreasing the enzyme activities relating to its own metabolism occur when high concentrations of ethanol pass through the liver, and thus may primarily appear during the absorption of alcohol from the gastrointestinal tract, when portal concentration of ethanol are very high.

## **Aloe Arborescens Can Enhance Leukocytes' Phagocytic Capacity In Adult Bronchial Asthma**

**Shida, Takao**

Dept. Of Clinical Study Of Rheumatic Allergy, National Sagamihara Hospital

Shida testified that several kinds of amino acid compounds, mucopolysaccharides, glycoprotein in Aloe arborescens can enhance leukocytes' phagocytic capacity in the case of adult bronchial asthma caused from upper respiratory tract infections. Shida group also administered Aloe extract to the patients who all were above fifty-one years old with no experience of steroid therapy. Results: as high as 63% of cure.

## **Stimulation Of Neuron-Like Cell Growth By Aloe Substances**

**Bouthet CF; Schirf VR; Winters WD**

Department Of Microbiology, University Of Texas Health Science Center

*Phytotherapy Research (1995) Vol 9, No. 3, pp. 185-188*

**A**loe plant materials are widely known for their uses in folk medicine, particularly for their ability to aid healing. The effects of Aloe substances, extracted from leaves or gel of Aloe barbadensis, were investigated on the induction of proliferation of human embryogenic lung cells (fibroblast cells) and rat adrenal pheochromocytoma cells (neuron-like cells). Both extracts stimulated proliferation in both cell lines. In short term cultures, gel substances significantly increased proliferation in suspension treated neuron-like cells to a greater extent than that detected in similarly treated fibroblast cells. In long term cultures, Aloe substances exhibited cytoprotective properties, and maintained the viability of cells.

## **Cirrhosis Patients With Aloe Arborescens**

**Yukawa, Susumu**

Wakayama Medical College

**A**loe arborescens extract was administered orally to eight cirrhosis patients. Clinical results: alleviations are recognized in general tiredness, anorexia, abdominal inflation, etc.

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