http://www.water-for-health.co.uk/index.php/fulvicacidresearch.html

Studies Conducted with Fulvic and Humic Acids.

Over 50% of hospital patients noticed that they were able to sleep more relaxed when treated with fulvic acid, a humic extract. Improved sleep came as an added benefit since the patients were already being treated with the fulvic acid for various chronic diseases.
Bingwen Su, Jiangxi Humic Acid, 3 (1985), as in: Application of Fulvic acid and its derivatives in the fields of agriculture and medicine; First Edition. June 1993; IHSS, Sevilla, Spain.

Hospital studies have shown that patients with normally incurable epidemic Hemorrhagic Fever were able to be successfully treated with humic extracts, which stopped bleeding, restored circulation, removed clots, was anti-viral, and significantly bolstered and regulated the immune system
Yinzhang Cui, Humic Acid, as in: Application of Fulvic acid and its derivatives in the fields of agriculture and medicine; First Edition. June 1993; IHSS, Sevilla, Spain.

Extensive hospital eye clinic studies using humic extracts showed 100% success in curing eye diseases caused by virus, bacteria, or fungus, also healing ulcerous wounds, relieving inflammation, and stopping hemorrhaging, without side effects.
Guofan, Tang, Jiangxi Humic Acid, 3 (1984), as in: Application of Fulvic acid and its derivatives in the fields of agriculture
and medicine; First Edition. June 1993; IHSS, Sevilla, Spain.

'Remarkable bone regeneration and resorption characteristics were identified when the animal bone implants were impregnated with a low molecular weight humic substance (fulvic acid) prior to transplant in to patients. The bone implant then became highly osteoconductive, and served the host tissue as a “guide-line” for the deposition of newly developing bone tissue. The same transplant procedure without the fulvic acid showed no signs of regeneration during the course of the experiment.

While on the lookout for a new group of active agents with the ability to promote wound healing, the doctors came across the humic substances. The doctors said that the bone resorption is most easily explained by the known ability of humate to induce the activation of leucocytes. They said that previous experiments had established that the humic substances are able to bind to calcium-containing compounds, stimulate granulocytes, and block the infectivity of the HIV virus.'
Extracts From: "Medical Aspects and Applications of Humic Substances" Regarding the Antiviral Activity of Humic Substances. Prof. Dr. Renate Klocking & Dr. rer. nat. Bjorn Helbig. Institute for Antiviral Chemotherapy, Friedrich Schiller University, Jena, Germany

MULTIPLE VIRUSES INHIBITED
"Preliminary in-vitro studies with Coxsackie A9 virus, influenza A virus and herpes simplex virus type 1 (HSV-1) have already shown that (Humic Substances) are effective against both naked and enveloped DNA viruses (Klocking and Sprosig, 1972, 1975; Thiel et al., 1977)." "Further investigations corroborate the ability of (Humic/Fulvic Acid) to inhibit selectively viruses for human immunodeficiency virus type 1 (HIV-1) and type 2 (HIV-2), cytomegalovirus (CMV) and vaccinia virus (Schols et al., 1991; Neyts et al., 1992)."

VIRAL FUSION INHIBITION
"With most viruses, the inhibitory effect of (Humic/Fulvic Acid) is directed specifically against an early stage of virus replication, namely virus attachment to cells (Klocking and Sprosig, 1975; Schols et al., 1991; Neyts et al., 1992)." "…it appears likely that the poly-anionic Humic/Fulvic Acids occupy positively charged domains of the viral envelope glycoprotein's, which are necessary for virus attachment to the cell surface (Neyts et al., 1992)."

HERPES
"The effect of (Humic/Fulvic Acids) on an early stage of herpes virus replication has been confirmed by the results of animal experiments. The number of lesions in the cornea of HSV-1-infected rabbits was strongly reduced when a solution of the (Humic/Fulvic Acid) was applied into the conjunctival sac of the eye along with or immediately after the infectious agent." "Current interest is directed to the prophylactic effect of (Humic/Fulvic Acids) on recurrent HSV infection." "It is known that topical application of (Humic/Fulvic Acid) may significantly reduce or even completely suppress experimentally induced herpes in the mouse ear (Durre and Schindler, 1992), though the mechanistic basis of this effect remains to be elucidated."

HIV
"A low-molecular weight (Humic/Fulvic Acid) (HS 1500, M.W. = 1500 Daltons), was found to strongly inhibit HIV-1 in vitro (Schneider et al., 1996)."

NON-IRRITATING
"Studies on the mechanism of action revealed virus penetration into host cells as the target of the anti-HIV-1activity. (Humic/Fulvic Acid) has passed a panel of pre-clinical tests including eye irritation according to Draize, as well as pregnancy risk in rats. Neither sensitizing nor irritating effects were detectable in concentrations of up to 10% HA/FA (Wiegleb et al., 1993; Lange et al., 1996a,b).'

CONCLUSION
"Taken together, results so far show that Humic Substances are promising candidates for prophylactic rather than therapeutic use in the treatment of viral diseases."

Editor's Note:

This last conclusion is based only on the limited studies referred to above. These studies show that Humic/Fulvic Acid is first a preventative, because it interferes with a virus' ability to attach to a host cell, penetrate the host cell, and reproduce itself.

Scientific studies have demonstrated that if a host cell is penetrated before the introduction of the Humic/Fulvic Acid, the reproductive process is not halted. HOWEVER, after the virus reproduces, the host cell releases the new viruses into the bloodstream. At this point, if Humic/ Fulvic Acid is present, it can prevent the new generation(s) of viruses from attaching to additional host cells. This is a therapeutic action that the above research has not specifically verified in procedure, hence the above conclusion. Further, the interaction of Humic/Fulvic Acid regarding the aforementioned viral studies would also be presumed to work for most if not all viral diseases. Other studies are currently on going throughout the world.

FULVIC/HUMIC ACID REFERENCES ON HUMAN/ANIMAL STUDIES (with on-line documentation in English):

1. Humic substances, especially low-molecular weight humic substances [fulvic acids], increase respiration in (rat liver) mitochondria. Study Conclusions Summary: Fulvic and humic acids stimulated respiration in rat liver mitochondria. The humic materials lower in molecular weight--(in other words, the humic material most closely resembling/most likely identifiable as fulvic acids, rather than as humic acids) induced more stimulation for mitochondrial respiration.
   [See abstract at: http://www.ncbi.nlm.nih.gov/pubmed/2953069 for more details.]
   R*eference Information:*
   Effect of humic substances on mitochondrial respiration and oxidative phosphorylation.
   Visser SA.
   Sci Total Environ. 1987 Apr;62:347-54.
   PMID: 2953069 [PubMed - indexed for MEDLINE]

2. Humic substance supplementation through drinking water benefits live performance, feed efficiency and meat color in broilers (chickens).This study from agricultural departments in a Turkish University examines different amounts of humic substance (including but not limited to fulvic substances) supplemented to chicken intake. Conclusions state that 300ppm and 450ppm appear to improve feed efficiency and lightness in color of breast and thigh meat, respectively.
   [See abstract at: http://www.ncbi.nlm.nih.gov/pubmed/19175461 for more details.]
   R*eference Information:*
   Effects of humic substances supplementation provided through drinking water on performance,
   carcass traits and meat quality of broilers.
   Ozturk E, Ocak N, Coskun I, Turhan S, Erener G.
   Journal of Animal Physiology and Animal Nutrition (Berl) 94.1: 2009 Jan 13, p78(8).
   PMID: 19175461 [PubMed - as supplied by publisher]

"Effects of a dietary complex of humic and fulvic acids ... on the health and production of feedlot cattle..."

3. Cattle fed with a humic and fulvic acid complex reached market specifications for body weight and fat depth in fewer mean days, had a greater average daily gain and a lower feed conversion ratio (as well as whiter fat), compared to cattle in the control, or humic/fulvic acid-less group of cattle.

[See abstract at: http://www.ncbi.nlm.nih.gov/pubmed/18271826 for more details.]

Reference Information:
Effects of a dietary complex of humic and fulvic acids (FeedMAX 15) on the health and production of feedlot cattle destined for the Australian domestic market.
Cusack PM.
Aust Vet J. 2008 Jan-Feb;86(1-2):46-9.
PMID: 18271826 [PubMed - indexed for MEDLINE]

"Genetic diversity-independent neutralization of [various viruses]... by enveloped virus neutralizing compounds (EVNCs)", including fulvic acids (in addition to other agents from pomegranate juice).

4. This report outlines research previously completed on the ability of fulvic acids that (can be described as Envelope Virus Neutralizing Compounds because they) can render vaccinia virus, HIV and SARS virus non-infectious, in addition to other research that has demonstrated fulvic acid's ability to inactivate genetically diverse strains of influenza, including H5N1.

[See abstract at: www.ncbi.nlm.nih.gov/pubmed/18241960 for more details]

Reference Infomation:
Genetic diversity-independent neutralization of pandemic viruses (e.g. HIV), potentially pandemic (e.g. H5N1 strain of influenza) and carcinogenic (e.g. HBV and HCV) viruses and possible agents of bioterrorism (variola) by enveloped virus neutralizing compounds (EVNCs).
Kotwal GJ.
Vaccine. 2008 Jun 6;26(24):3055-8. Epub 2007 Dec 26.
PMID: 18241960 [PubMed - indexed for MEDLINE]

"Certain humic substances may have possibilities to improve growth performance and reduce ammonia emission" via swine diet supplementation.

5. Previous reports on ammonia emission reduction resulting from direct applications of humic and fulvic acids to livestock manure are mentioned in this article, in addition to complete disclosure of a measurements from a U.S.-based study in which swine diets were supplemented with various amounts of humic substances for this same purpose and for purposes related to the general benefits of fulvic/humic acid supplementation.

R*eference Information:*
Humic substances may improve pig growth.
Goihl J.

Journal of Animal Science Vol. 84, No. 9.
Miller Publishing Co. Inc. 2006.

6. Fulvic acid assists patients in healing mucous membrane bleeding.
"Six patients suffering from mucous membrane bleeding all showed apparent positive results...No relapse was observed in any case...It is clear that fulvic acid indeed can [help] stop bleeding...Experimental results indicated that 30 minutes following intravenous injection of dogs with 160 mg of fulvic acid...The blood clotting process was accelerated, yielding advantageous blood coagulation.
R*eference Information:*
Observations on the use of fulvic acid as a blood coagulant.
Suchen Cao, Medical University in Zhejiang Province [Jiangxi], China
Application of Fulvic acid and its derivatives in the fields of agriculture and medicine; Chapter 35; First Edition: June 1993; IHSS: Sevilla, Spain.

7. In vitro proof in topical treatment of pyotraumatic dermatitis in cats and dogs with a ('sister-form') of fulvic acid that was simultaneously studied for its ability to counter the following "microbial pathogens...Streptococcus faecalis, Staphylococcus aureus, Pseudomonas aeruginosa, Escherichia coli, Streptococcus pyogenes, Klebsiella pneumoniae, Proteus mirabilis and Candida albicans"

Plans by one company to produce a topical/oral application that combines fulvic acid with a few additional ingredients have proven that fulvic acid-containing product's can improve pyotraumatic dermatitis in dogs and cats is currently undergoing an international patent process for the product, also stating that the 'pharmaceutical composition' may be used to treat 'a condition in a human or an animal'.

R*eference Information:*
Fulvic acid and its use in the treatment of various conditions.
Dekker J, Medlen CE
Patent Corporation Treaty number IB1999/001649
and
An in vitro investigation of the antimicrobial activity of oxifulvic acid.
Van Rensburg CEJ, Van Straten A, Dekker J
Journal of Antimicrobial Chemotherapy, 2000; The British Society for Antimicrobial Chemotherapy

8. Dog kidney cells are administered influenza virus and humic acids, resulting in the inhibition of viral replication. "...Humic Acid inhibit[s] the in-vitro replication of influenza virus A/WSN/33 (H1N1) in Madin-Darby canine kidney (MDCK) cells at concentrations of no cytotoxicity... The IC50 for Humic Acid was 48.61 +/- 7.32 microg/ml and 55.27 +/- 5.46 microg/ml respectively when the compound was added at the stage of viral adsorption or post-adsorption... Humic acid inhibits the endonuclease activity of viral RNA polymerase." [See abstract at: www.ncbi.nlm.nih.gov/pubmed/11890523 for more details]
R*eference Information:*

In vitro anti-influenza virus activity of synthetic humate analogues derived from protocatechuic acid.
Lu FJ, Tseng SN, Li ML, Shih SR.
Archives of Virology. 2002;147(2):273-84.
PMID: 11890523 [PubMed - indexed for MEDLINE]

FULVIC/HUMIC References RELEVANT TO HUMANS/ANIMALS without on-line abstracts:

[Effectiveness of phenol body polymers against influenza virus A/Krasnodar/101/59/H2N2] (German)

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Biomed Biochim Acta. 1983; 42(10):1353-6.
PMID: 6675676 [PubMed - indexed for MEDLINE]
[Studies conducted at] Tongren Hospital, Beijing; 1988
2. Yuan, Shenyuan, et al
Application of Fulvic acid and its derivatives in the
fields of agriculture and medicine. Fulvic Acid, 4. June 1993; First Edition.
The Use of a Processed Humic Acid Product as a Feed Supplement in
Dairy Production in the Netherlands.
3. B. P. H. Tomassen BPH, Faust RH.
IFOAM 2000: The World Grows Organic: Proceedings of the 13th International IFOAM Conference.
August, 2000; Basel, Switzerland.
Anti-ulcerogenic activity of Fulvic Acids and
4. 4-mehtoxy-6-carbomethoxybiphenyl isolated from Shilajit.
Shibnath Ghosal S, Jawahar Lal J, Sushil K. Singh SK, Kumar Y, Srivastava R.
Phytotherapy Research. 1988; Vol. 2, No. 4.

Help For Flu Vaccine Shortage

Natural humic acid coats viruses and makes it more difficult for them to attach to healthy cells and multiply. It has shown to reduce viral counts in numerous patients with a variety of viral inflictions including hepatitis and HIV.

(PRWEB) November 5, 2004 -- Viruses are extremely small organisms that can easily get inside cells. They are parasitic in that they enter healthy cells where they reside and feed off these cells. They raise their young within these cells to be spread to other cells inside and outside the body (through sneezing, excretion of body fluids, sexual transmission, etc.)
Viruses contain a receptor-binding protein that keeps them attached to the healthy cell. This protein encapsulates the virus and makes it resistant to attacks from the immune system. Humic acid is a nutrient from the soil that dilates a healthy cell and causes permeability so it can enter.

When Fulvic Acid finds a virus it coats it with a substance that not only prevents the virus from attaching to a healthy cell, but also sends a signal to the immune system alerting it of the invader. This kicks the immune system into action against the virus that has been laid vulnerable by this coating. As explained by Dr. Howard

Peiper in the book, "Live Disease Free" (to be released in December, 2004) special processing by some supplement manufacturers creates a "viral infusion inhibitor" that prevents the virus from reproducing. Therefore, viral counts are reduced and the immune system is more successful in ridding the body of the virus before it can gain a foothold and create an illness.
Humic acid is selective and seems to know which cells are virus laden. It coats only those cells, leaving the healthy cells alone so the immune sys-tem will attack only the virus. Studies have shown no negative side effects when using humic acid.

The National Institute of Health in 2002 concluded that humic acids exhibit effects both as a preventive and a curative from a broad range of viruses. They also indicated that if taken before introduction of the virus, patients exhibited a strong prophylactic effect. As quoted from Experientia, 1972 28(5) by Klocking and
Sprossig, "Medical studies show that difficult respiratory illnesses common in children are readily resolved with humic acid dietary supplementation." With results like these humic acids would be a worthy addition to a dietary regime during the flu season.

Radioactive Reactions with Fulvic and Humic Substances

According to Szaloy, radioactive elements react with humic substances and require only a brief time until equilibrium is reached.

F.W. Pauli stated that the solubility, migration, and accumulation of uranium are influenced by humic and fulvic acids. The fuel discharged from the light water reactors is contaminated with substantial Szalay, A. (1958). The significance of humus in the geochemical enrichment of uranium. Preceedings of the 2nd International conference on the Peaceful Uses of Atomic energy, 2, 182-186. (London: Pergamon) amounts of plutonium and uranium. These ions react with humic compounds at a much more rapid rate than do copper, nickel, lead, or cadmium ions. *117* Pillai and Mathew agreed that it would not be unrealistic to presume that the geochemical behavior of plutonium and uranium is influenced by humic substances. They reported the presence of plutonium in purified organic material extracted from coastal sediments and indicated the possibility of the accumulation of plutonium on organic surfaces because the concentration of plutonium increased over time. As they confirmed that the organic matter solubilized the plutonium, they discovered that the addition of organic matter inhibited the hydrolysis and precipitation of the added plutonium. It was further reported that this scenario duplicates the action with uranium and other radioactive elements. *118*
Rashid stated that nuclear reactor wastes contain unused uranium, the basic fuel, and long-lived fission product nuclides and actinides, including plutonium, strontium-90, zirconium-95, iodine-129, cesium-137 and cesium 135, all in abundance. Activated metals such as cobalt-60,

iron-59, and manganese-54 also are present in reactor waste. He states that the basic reactions of these materials with humic substances are parallel to those of other transition and trace metals. *119*

"Radioactive elements have an affinity for humic and fulvic acids. They form organo-metal complexes of different adsorptive stability and solubility. Uranium and plutonium are influenced by humic substances as are other polluting metals, each being solubilized and absorbed, thereby annihilating the specific radioactivity." *120*

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