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# RESEARCH REVIEW

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## HUMIC ACID: THE POWER OF DETOX AND IMMUNE SUPPORT ALL IN ONE

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Dirt contains a powerful substance called humic acid. It is derived from organic matter in humus and peat within the soil. Chemically, humic acid is a mixture of acids that bind with charged ions making them good antioxidants and free radical scavengers. The charges on these molecules also allow the acid to move minerals and chemicals around the soil and the body. Because humic acid is too large to be absorbed into the blood stream, redistribution of toxins is not a concern making it ideal for detoxification. The compound binds substances in the digestive tract to be removed from the body. In addition, humic acid contains nutrients needed by the body and can strengthen our immune response.

### Detoxification

We live in a toxic world. Over 493 toxins have been found in people ranging in ages from newborns to adults according to research by the Environmental Working Group. These toxins range from pesticides, to petrochemicals to toxins such as DDT that have been banned decades ago but still exist in newborn cord blood. Many of these toxins have been shown to cause cancer, damage to the brain and abnormal development. Because we live in a toxic world we need tools to strengthen our bodies to rid ourselves safely of toxins.

The ability to bind toxins has led to the commercial use of humic acid for both animals and humans. Humic acid was shown to be effective in removing mercury from pigs. Humic acid increased excretion of mercury from all organs tested in these animals with a reduction in brain mercury levels of 87% compared to controls<sup>1</sup>. These findings were unexpected since humic acid does not leave the intestines. It appears that glutathione frees mercury so humic acid can bind it giving glutathione the ability to bind more mercury and pull it from organs such as the brain.

Human use has also shown positive reductions in heavy metals. After lead exposure, humic acid complexes after 12 weeks reduced lead levels on average by 0.26 umol/100 cc<sup>4</sup>. After a toxic cadmium exposure, workers were given 6 weeks of a humic acid complex. Blood cadmium levels dropped by 17%. In addition to the decrease in cadmium, humic acid provided positive benefits

including improvement in markers of liver and kidney function and correction of low iron levels<sup>7</sup>.

Environmental chemicals such as the pesticide glyphosate can also be removed by humic acid<sup>2,10</sup>. The humic acid complexes adsorb glyphosate from the soil. Adsorption is the chemical reaction between two charged molecules binding together. One of glyphosates negative impacts on the body is its ability to harm the beneficial bacteria in our intestines<sup>2</sup>. Humic acid inhibits this antimicrobial loss from glyphosate on several species of bacteria in the intestine.

### Nutritional Benefits

Humic acids since they are derived from organic substances are also a good source of minerals. Because they are charged molecules, they transport these minerals in the soil providing nutrients to aid plant growth. When ingested by animals or humans, they are also a natural mineral source. Humic acid increases cell membrane permeability which facilitates the transfer of minerals into cells.

### Immune Support

Humic acid helps support the immune system in multiple ways. Because of its ability to bind molecules, it assembles sugars in the body to form glycoproteins. These glycoproteins bind to T cells and killer immune cells facilitating communication. Modulation of the immune cells by the glycoproteins helps to balance these cells. In addition, humic acid supports the immune system by stimulating good microbes and inhibiting bad microbes. Specific species such as *C. albicans*, *Ent. Cloacac*, *Prot. Vulgaris*, *Ps. Aeruginosa*, *S. typhimurium*, *St. aureus*, *St. epidermidis*, and *Str pyogenes* are inhibited by humic acid complexes<sup>11</sup>.

Anti-viral properties of humic acid have been studied since the 1960's<sup>12</sup>. It appears as if the humic substances prevent viral replication by attaching to the viral envelope protein and coating its receptor sites. Blocking the virus receptor sites disables the virus from being able to bind and infect host cells. This ability extends to all viruses. In 2002, NIH published a report titled "Broad Spectrum Antiviral Effectiveness of Humates" which discussed anti-viral effects against a range of viruses from influenza to herpes and even severe infections such as Ebola virus<sup>9</sup>.



## Safety

Humic acid has a high safety profile with no known side effects<sup>3</sup>. It exists in all soils. Humans and animals are exposed to it from the soil since it is a natural substance. Industry has safely used the product for industrial exposure to heavy metals in both humans and in animals.

## Summary

In our toxic world finding a natural substance that can help remove toxins is important. Even better is the fact that it can bind both heavy metals and pesticides such as glyphosate. Humic acid has been used in industry to remove heavy metals from exposed workers and glyphosate from the soil. With the knowledge of its ability to detoxify and support the immune system, this is a supplement that adds a myriad of benefits safely. The power of “dirt” to safely improve our health.

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