Humic acid science – DetoxiFlex

Background

In the 1950s Dr. Elek Csucska, an agricultural engineer, was assigned to oversee a farming cooperative close to the Lake Balaton in Hungary. He soon noticed that cows, that were kept in a "nomadic" way, were regularly visiting a special swampy area nearby the lake at the end of the day. As the cows were standing in the shallow water, they were willingly feeding on a humus-like substance from the bottom of the lake. Dr. Csucska immediatelly suspected that this peat must have had some beneficial effects on the cow's physiology. This gave him the idea to try the effects of this "humus" on turkeys, the main live-stock of the cooperative Dr Csucska was also overseeing. He first observed that those turkeys that received this material mixed in their feed, gained weight much faster, than those that did not. Then, he also found that the frequency of certain diseases, that often affects turkey populations, radically decreased in the humus-fed turkey population. In fact, after regularly feeding this humus substance to the entire turkey stock, the common turkey diseases virtually disappeared. Dr. Csucska's findings got the attention of higher authorities and a systematic research on this humus-like substance has started in Hungary.

It soon turned out that this particular humus was a special, tens of thousands of years old lignin. In fact, the Hungarian government shortly started mining this type of lignin from that swampy area at the Lake Balaton. Meanwhile research laboratories have been set up to chemically analyze the substance. At the same time animal experiments with the humic substance isolated from this humus have also been initiated. Unfortunately, all civilian research with the substance has been halted at the end of the 1960s, as the Warsaw Pact Military showed special interest in the substance. In the 1990s, when – after the collapse of the Soviet Union – most of the research with humic substances could have been restarted, it has been disclosed that the reason for the military takeover of the research was the discovery that these humic substances fed to animals showed significant protection against radioactive radiation. It turned out from the previously top secret military documents that the beneficial effects of the substance was, first of all, due to its capacity to eliminate radioactive strontium and uranium from the experimental animals' organism.

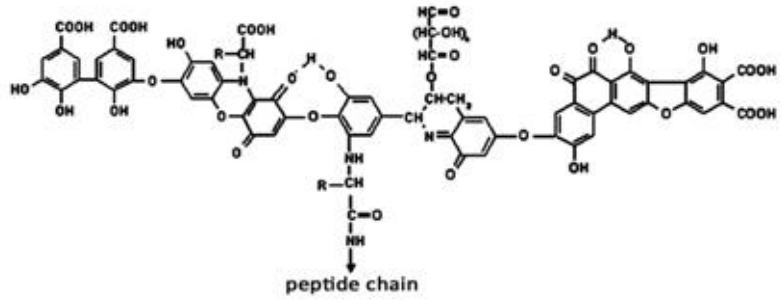

Fig. 1: *The chemical structure of humic acid monomer. This unit might be repeated several times to form a polymer of molecular weights of several thousand, even millions.*

In the last twenty years research laboratories and clinics have conducted research on and with these humic substances not only in Hungary, but around the world. Their structure and composition have been clarified and many of their health related effects have been thoroughly studied. Their main component is humic acid (see Figure 1), which has very high affinity towards metals, especially towards heavy metals, and has very high antioxidant capacity. (The latter is not really surprising as their structure is reminiscent of condensed polyphenols and, as it is now suspected, humic acids are condensation

products of plant proteins and plant polyphenols.) The other organic component present in significant quantities is the lower molecular weight fulvic acid.

There are various health benefits of supplementation with humic substances, including cardio-protective affects, that is most likely due to their potent antioxidant properties, and anticancer effects as shown in animal experiments. Besides these, it appears that their significance – as far as health is concerned – lies in their capacity to bind heavy metals with very high affinity. There are several early human studies indicating that oral administration of humic and fulvic acid (in a natural mixture as they are present in the humic substances at Lake Balaton) in fact results in heavy metal (cadmium, lead and mercury) depletion from the body.

Purified humic acid (by Argina)

Due to the very high affinity of humic substances to metals, the raw material (as it is mined at the site near to the Lake Balaton) contains many different bound metals, mostly trace metals, that are beneficial to the human body, but also aluminium, which might have some unwanted adverse effects. In addition, although toxicological studies showed no toxic effects of the raw material, in some rare cases some gastrointestinal discomfort has been reported, which later turned out to be caused by fulvic acid, the low molecular weight organic component in the raw material.

Argina – with the help of Dr. Janos Csicsor, chemist of the University of Veszprem and Hymato Products, Hungary – engaged in a research project, which aimed to purify the large molecular weight components of humic acid in order to remove both the bound aluminium and the fulvic component. The active ingredient of DetoxiFlex was produced: it contains an **aluminium-depleted** and virtually fulvic acid free humic acid preparation that supplemented with zinc. (In order to keep Zn-humate in the reduced state to preserve its heavy metal binding capacity, DetoxiFLex also contains ascorbic acid, *i.e.* vitamin C.) Figure 2A and B above show the effectiveness of DetoxiFlex in eliminating heavy metals from the body.

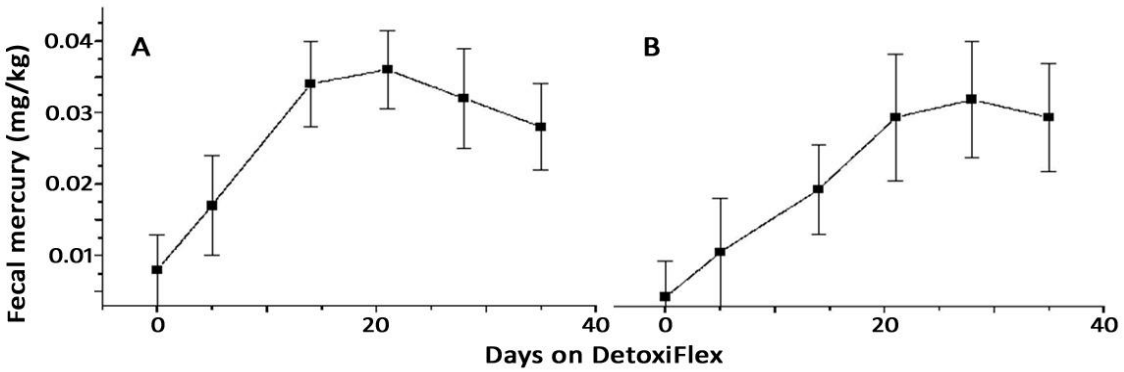

Fig. 2: *Fecal secretion of mercury after oral treatment with DetoxiFlex for different duration (days on DetoxiFlex).* ***A:*** *participants with amalgam filling in the teeth,* ***B:*** *without amalgam*

Study details. 21 volunteers with amalgam fillings, 8 volunteers without amalgam fillings (but consuming fish frequently) and 11 volunteers working in a semiconductor plant in Aiken, SC, USA participated in the study. Volunteers were instructed to take one capsule a day of 114 mg Zn-humate supplemented with 50 mg ascorbic acid, and requested not to consume sea food for two weeks prior to and during the study period. Feces (and urine) were collected and analyzed by Inductive Coupled Plasma Spectrometry Assay (DOCTOR'S DATA, Inc., St. Charles, IL,

USA). As during the study and the three month follow-up, no adverse effects of DetoxiFlex administration were observed, it was concluded that DetoxiFlex is **safe** and **effective** (see also references under ***Humic acid literature***) in eliminating heavy metals from the human body.

Humic acid literature

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