Food-Grade Bacteria Species to Detoxify and Remove Heavy Metals from Humans

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Technology description

Background:

There are many heavy metals in our environment, both naturally and from pollution. The term "heavy metal" applies to a group of metals with similar chemical properties. Some of these, including copper, iron and zinc, play important roles in our bodies, while others can have toxic effects. Examples of these are lead, which is found in paint in old homes as well as many other sources; arsenic, which can be found in well water and wood products; and mercury, which can build up in fish that we eat. At very high levels, most heavy metals can cause health problems. People may be exposed to small amounts of heavy metals through food, water, air and commercial products. People can also be exposed in their workplace, as several industries use or produce these metals.

In 2007, the Centers for Disease Control reported that 1 in 150 children were diagnosed with autism and boys out number girls four to one. One study has shown that the severity of autism is directly linked to heavy metal levels (Adams et al., Journal of Toxicology, 2009). This study highlights the importance of avoiding elevated heavy metal blood levels to ensure normal neurological development in children, and provides evidence for the recommendation that pregnant women avoid foods with high heavy metal content such as fish.

Description of the Invention:

This invention comprises using different species of food-grade bacteria, or probiotics, in order to sequester and remove toxic heavy metals from the human body or the environment. These bacteria, which can be introduced orally, can sequester various heavy metals including mercury, arsenic and lead. They can be used to reduce the uptake of heavy metals by the digestive system and thus can result in the lowering of heavy metal levels in the blood of humans and animals.

Advantages

- Food-grade bacteria that can be fed to humans in order to sequester and prevent uptake of heavy metals
- Supplements for pregnant women to help reduce exposure of developing fetus to heavy metals
- Potential use in fish farming facilities to decrease the level of heavy metals accumulating in the fish
- Advantage over other bacteria used for bioremediation in that they are safe for consumption.

Institution

WORLDiscoveries

Inventors

Marc Monachese
MD, MSc, BMSc (Hons)
PGY1 Internal Medicine
Gregor Reid
Associate Scientific Director
Microbiology and Immunology
Jordan Bisanz
(Former)
LHRI
Jeremy Burton
Urology, Dept of Surgery

联系我们

叶先生

电 话：021-65679356

手 机：13414935137

邮 箱：yeyingsheng@zf-ym.com