

Herbal Medicines and Heavy Metals

Heavy metals are naturally occurring elements widely distributed in the environment. They can be absorbed into the human body through sources such as water, food or air, and may cause harmful health effects when exceeded certain levels. Although a single intake of large amounts of heavy metals from normal use of Chm is rare and the risk of acute toxicity remains low, however, toxic heavy metals such as arsenic, cadmium, lead, and mercury are capable of accumulating in the body over time. As these metals have no physiological function at any level of exposure, chronic exposure may lead to significant adverse health effects.



Advice to the Public

Use herbal medicines as instructed by Chinese medicine practitioners



Chinese medicine practitioners should be consulted prior to the use of herbal medicines. It is advised to adhere to the decocting method, consumption time and dosage as prescribed. Once recovered, one should stop consuming the herbal medicines and avoid unnecessary prolonged consumption.

Purchase herbal medicines from licensed retailers

Licensed Chinese Medicines Retailers



Purchasing herbal medicines from licensed retailers ensures that the herbal medicines come from reputable suppliers and therefore, reducing the risk of buying herbal medicines which may contain high levels of heavy metals as a result of adulteration or improper processing.

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Department of Health
Chinese Medicine Regulatory Office
Website: www.cmro.gov.hk

Rinse the herbal medicines before decocting



Herbal medicines should be rinsed under running water before decocting in order to remove heavy metal contaminants in the mud and sand attached on the surface of the herbal medicines.

Use ceramic containers for decocting

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|----------------|---|---------------|
| ✗ Aluminum pot |  | Ceramic pot ✓ |
| ✗ Copper pot | | Clay pot ✓ |
| ✗ Iron pot | | Earthen pot ✓ |

Metal containers may easily react with ingredients of the herbal medicines and then release metal ions, hence, chemically-stable containers such as ceramic containers should be used.

Use ceramic containers for decocting



After decocting, the active ingredients of the herbal medicines have already dissolved into the decoction. Studies have shown that even if the herbal medicines are contaminated by heavy metals, most of the heavy metals retain in the herbal medicine residues after decocting. It is therefore advised to consume the decoction only but not the herbal medicine residues.

Reference for proper decoction method:

https://www.cmro.gov.hk/html/eng/useful_information/public_health/pamphlet/Preparing_Herbal_Decoctations.html



◆ Advice to the Public

Purchase herbal medicines from reputable suppliers



To ensure compliance with safety standards of herbal medicines, wholesalers of Chinese herbal medicines (“Chm”) should purchase herbal medicines from reputable suppliers and retailers of Chm should purchase herbal medicines from licensed wholesalers of Chm.

Maintain a proper transaction record



Licensed retailers and wholesalers of Chm should maintain all transaction records in accordance with the Chinese Medicines Regulation (Cap.549F of the Laws of Hong Kong) and practising guidelines prepared by the Chinese Medicine Council of Hong Kong. This facilitates timely tracing of the concerned herbal medicines and their corresponding distribution channels when necessary.

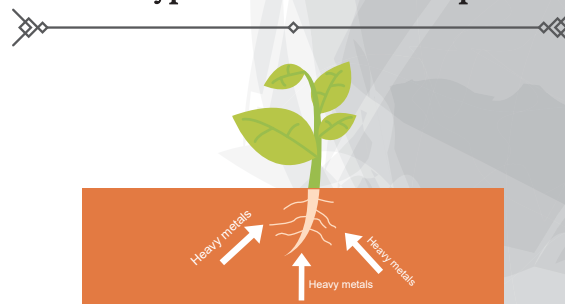
◆ Why some herbal medicines contain higher level of heavy metals?

Pollutions in the natural habitat of herbal medicines



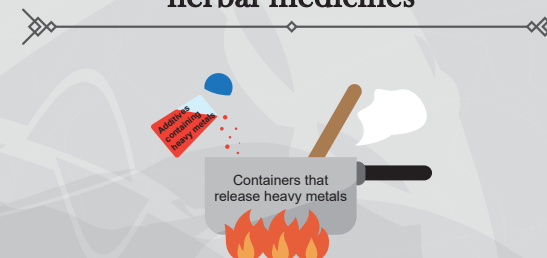
For example, heavy metal contamination in the soil and water, or improper use of pesticides and fertilizers during cultivation.

Metal hyperaccumulation in plants



Some plants can actively absorb certain heavy metals from the soil.

Contamination during processing of herbal medicines



Use of containers that release heavy metals, or use of additives containing heavy metals during processing.

Herbal medicines derived from minerals



For example, Cinnabaris (mainly contains mercuric sulphide) and Realgar (mainly contains arsenic(III) sulphide) are herbal medicines derived from minerals which contain heavy metals.

◆ Effects of heavy metals

Arsenic

Inorganic arsenic is a human carcinogen and may cause skin lesions and developmental issues with long-term exposure.

Cadmium

A human carcinogen that accumulates in the kidneys, potentially leading to irreversible dysfunction, disrupted calcium metabolism, and kidney stones

Lead

Chronic exposure may reduce IQ in children and increase the risk of high blood pressure, cardiovascular problems, and kidney damage in adults.

Mercury

Inorganic mercury is corrosive to the skin, eyes, and gastrointestinal tract and may cause kidney toxicity. Organic mercury (such as methylmercury) may impair neurological development in fetuses and children, causing developmental delays and behavioral issues.