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# Arsenic – a natural component of drinking water

During the last few months several food crisis hit the news headlines. Chloramphenicol in poultry meat and shrimps, expoxidised soybean oil in pasta sauce, or Sudan I dye in chilli powder are only a few examples. Fortunately, the big majority of these new discoveries did not pose an immediate risk to human health and food authorities were able to implement measures to correct the situation. All of the above substances were introduced into the food chain by man, either for technical reasons or in an attempt of deception. On one hand, this may explain why media and consumers focus on these issues. On the other hand, this also helps authorities in their management process. If a substance is introduced deliberately into the system, there is mostly an achievable way to limit or even ban its use.

In the medial flashlights we sometime forget, that there are many natural substances present in our foods, possibly also having negative effects on our health. In this issue *Haldimann et al.* (1) describe the presence of arsenic in drinking water. It is well known that due to geological conditions arsenic is a natural component of drinking water in the Swiss Alps. However, the actual concentrations are mostly not or inadequately known. Haldimann and co-workers detected only 7 samples with an arsenic concentration above the allowed limit of 50 µg/l. However, a significant number of analysed samples showed concentrations above 10 µg/l, the maximum value set by the WHO and the European Union (2, 3).

The question why the Swiss limit for arsenic in drinking water is higher then the one in Europe is legitimate. One could argue that a lower limit equals increased safety. But in reality, it is difficult to put an actual number to the potential safety gain of lowering of the limit. A first analysis of *Brüschweiler* and co-workers (4) shows that arsenic concentrations in some areas of the Canton of Valais may be higher than wished but do not pose a significant health risk. No association between arsenic concentration in drinking water and cancer could be detected. However, the amount of data available to *Brüschweiler et al.* was limited and therefore the power of their study to detect small risks was low.

There is another relevant question: is it actually possible to lower the limit? To write a limit into legislation is one thing, to assure that this is indeed achievable is another thing. There may be technical solutions to lower arsenic concentrations in drinking water. The availability and efficiency of these technologies have to be studied in detail. But there is also the possibility that due to nature we may have to accept an increased arsenic concentration in some regions of Switzerland.

Does this also mean that our health is in danger? I don't think so. It is indeed the government's task to assure the safety of our foods. However, some natural risks may not be controllable and therefore each individual is required to contribute with a healthy lifestyle to the maintenance of health. This means that we have to put an extra effort into eating a balanced diet rich in fruits and vegetables. While some foods may carry substances probably having a negative effect on human health, some also carry protecting substances like vitamins and/or phytochemicals. A balanced diet combined with sufficient physical activity is the best basis for a long lasting well-being.

## References

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- 3 *Anonymous*: Council directive 98/83/EC on the quality of water intended for human consumption. European Commission. Official Journal L 330. 05/12/1998. p. 32–54 (1998)
- 4 *Brüschiweiler B.J., Schlatter J.R., de Weck D., Favre F. and Luthi J.-C.*: Occurrence of arsenic in drinking water of the Canton of Valais. Part II: Epidemiological comparison between arsenic concentrations and cancer incidence rates. *Mitt. Lebensm. Hyg.* **96**, 106–117 (2005)

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