

## Soon: Banana smoothies with nano minerals

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*A simple banana smoothie, enriched with nano-sized minerals could soon make billions of people in developing countries healthier.*

Scientists from Switzerland have designed new iron and zinc nanoparticles that solve a longstanding conundrum in food fortification—how to make food more nutritious without changing its taste.

The research could help eliminate anaemia and zinc deficiency across the globe.

"Iron and zinc deficiencies are common around the world. Yet many compounds used in food fortification are either absorbed poorly or, when they have high absorption, change the colour, taste and smell of food," *Discovery News* quoted Michael Zimmermann, a scientist at ETH Zurich and a co-author of the study as saying.

To create the nanoparticles, the Swiss scientists dissolved iron in water, then sprayed the solution over very hot fire.

The intense heat quickly evaporates the water, leaving tiny iron or zinc crystals, each one about 10 nanometers across. Those nanocrystals then clump together.

The large clumps do not change the taste, colour or smell of food.

However, when the clumps drop into the stomach acid, they break apart into tiny particles, which are easily absorbed by the body.

The scientists added the nanoiron to chocolate milk and a banana smoothie, and then fed them to rats. Since they were fed a low-iron diet, the rats were anaemic.

The rodents drank the fortified fluids and exhibited no unusual behaviour.

The team had similar results using zinc nanoparticles, said Zimmermann.

Zinc deficiency, while undoubtedly harmful, isn't as debilitating or widespread as anaemia.

No humans have yet tasted the iron and zinc nanoparticles. "But I would drink them," said Zimmermann. Next, the scientists plan to do human trials.

There is no reason to expect there would be any problems consuming the nanometal.

The human body is supposed to absorb iron, and most people don't consume enough anyway.

However, this is a new material, said Dennis Miller, a food scientist at Cornell University in New York. More research is needed before humans actually consume it.

Chances are that nanoiron is perfectly safe for humans to consume, said Miller, but there is a slight chance that the tiny nanoiron particles could bypass normal iron absorption mechanisms and overload the body.

However, overall, the new research is a big step forward for food fortification.

"A lot of time and effort has been spent over many years to come up with an iron fortificant that is bioavailable but doesn't change the color or flavor of food. This one has real potential," said Miller.

The study was published in a recent issue of *Nature Nanotechnology*.