

Research supports calls to study health benefits of nitrate, nitrite

August 20 2009



This is Michigan State University researcher Norman Hord. Credit: MSU

A Michigan State University researcher is challenging health standards that consider nitrates and nitrites in food to be harmful.

Norman Hord's research suggests that although there are negative health effects associated with the use of nitrogen-based fertilizers and excessive nitrates in groundwater, nitrates and nitrites -- as they occur in plants -- may actually provide health benefits.

Nitrate and nitrite are naturally occurring ions associated with the nitrogen cycle in [soil](#) and [water](#). They are regulated in water and certain

foods by the Environmental Protection Agency and the [Food and Drug Administration](#) because they have been associated with gastrointestinal cancer, blood disorders in infants and other health problems. The World Health Organization established a standard of 222 milligrams per day as an acceptable daily nitrate intake.

Most of the concern with these compounds relates to their presence in drinking water from shallow wells near farms and the consumption of processed meats. In most diets, however, between 70 percent and 80 percent of the nitrates comes from vegetables, government and research sources say.

"We and others have shown that components of vegetables and fruit that originate in the soil may function as nutrients by contributing to cardiovascular health," says Hord, associate professor of food science and human nutrition. "Since these components of plant foods have important health implications, the regulatory limits on the consumption of plant foods that contain nitrates and nitrites need to be seriously reconsidered."

Hord, the primary author of the study, collaborated with Nathan Bryan and Yaoping Tang at the University of Texas Health Science Center in Houston. Their thesis and supporting arguments were published in the July 2009 issue of The [American Journal of Clinical Nutrition](#).

"We wanted to show the toxicity risk cited as the basis for federal regulatory levels for nitrate and nitrite are irrational because plant foods contain high concentrations of these food components," Hord said. "People consuming a variety of fruits and vegetables may be ingesting much more nitrate and nitrite than recommended -- more than 1,000 milligrams -- with no adverse health effects. We're calling for a systematic reevaluation of the literature to highlight the potential beneficial contributions that nitrates and nitrites from vegetables and

fruits make to cardiovascular health."

In an accompanying editorial, [Nitrate](#) in Foods: Harmful or Healthy?, Martjin Katan from the Institute of Health Sciences at VU University in Amsterdam said it is undisputed that nitrates benefit arteries, and he called for a trial to investigate whether consuming a [food](#) pattern rich in nitrate-containing vegetables is effective in lowering blood pressure.

Source: Michigan State University ([news](#) : [web](#))

Citation: Research supports calls to study health benefits of nitrate, nitrite (2009, August 20) retrieved 26 April 2024 from

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