

# New DNA test identifies ingredients in foods

March 27 2013

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Scientists at Mainz University develop a novel screening procedure for accurately determining the amount of animal, plant, and microbial substances in foods

Almost all foodstuffs contain the genetic material of those animal and plant species that were used in their preparation. Scientists at the Institute of [Molecular Genetics](#), Genetic Security Research and Consulting at Johannes Gutenberg University Mainz (JGU) have developed a novel screening procedure that provides for highly sensitive, quantifiable analysis of animal, plant, and microbial substances present in foodstuffs. For this, the researchers have adapted the latest techniques of DNA sequencing, which are otherwise currently employed in [human genetics](#) to unravel the genetic information of thousands of patients.

"The innovative aspect in comparison with conventional [DNA detection](#) methods such as [polymerase chain reaction](#), or PCR for short, is that by means of bioinformatic analysis of all biological [DNA data](#) available worldwide we can identify the presence of material from species that we would not otherwise expect. And, using a simple digital method of counting short snippets of DNA, we will also probably be able to determine the relative incidence of individual species-related material more precisely than was previously the case," explained molecular geneticist Professor Dr. Thomas Hankeln, who developed the method in collaboration with bioinformaticist Professor Bertil Schmidt, Ph.D. and colleagues at the German and Swiss food control authorities.

In pilot studies, the researchers were able to use the new DNA method to

detect the presence of a 1% content of [horse meat](#) in products and to determine the actual amount with a high level of precision. The Mainz researchers even found slight traces of the DNA of added mustard, lupin, and soy in a test sausage prepared for calibration purposes, something that could also be of interest with regard to allergy testing of foods.

Because of its potential, the method – dubbed 'All-Food-Seq' by its developers – has already attracted the attention of food inspection experts. "This method is very interesting in connection with efforts to promote the molecular traceability of food," said Hermann Broll of the German Federal Institute for Risk Assessment in Berlin and Dr. René Köppel of the Zurich Cantonal Laboratory in Switzerland. The method developed by the Mainz scientists is thus to be validated in comparison with conventional detection techniques in the near future.

Provided by Universitaet Mainz

Citation: New DNA test identifies ingredients in foods (2013, March 27) retrieved 26 April 2024 from <https://phys.org/news/2013-03-dna-ingredients-foods.html>

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