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New antibiotic lives in dish of Korean food, OSU pair find

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While trying to find something that would help preserve foods such as yogurt, cheese and sausage, two Ohio State University researchers stumbled upon something even better: a new antibiotic.

Ahmed Yousef and Zengguo He were looking for a preservative in kimchee, a Korean dish made from fermented cabbage.

The two had hoped to find something similar to nisin, a natural preservative used in foods including Caesar salad dressing and liquid cheese.

But what they found was a strong microorganism that kills harmful bacteria.

"The resistance is the big issue," said He, a research associate in the Food Science and Technology Department.

"Some pathogens can resist any antibiotics. It's hard to develop a resistance to this."

New antibiotic discoveries are important in a time when overuse is creating stronger bacteria.

Their work on paenibacillin was published this week in the American Society of Microbiology journal *Applied and Environmental Microbiology*.

"The discovery of new antibiotics is not keeping up with the organisms that fight them," said Yousef, a professor in the Food Science and Technology and Microbiology departments at Ohio State.

"But we know how strong this is."

John Reeve, chairman of the OSU Microbiology Department, said the find could be important because paenibacillin apparently is effective against harmful organisms in the food chain.

Recent E. coli outbreaks, for example, bring this point home.

"It's really one of those tremendous things: Someone who sees a problem works toward a solution and the world sees it," Reeve said.

Early on, when they thought they had a food preservative, Yousef and He approached food industry officials in an effort to get more research funding.

Then they knew they had something bigger.

"Usually if an antibiotic is that strong, the food industry is reluctant to use it because the medical industry might use it," Yousef said.

So they kept working with the money they had, rebuilding old machines rather than buy new ones and stretching every dollar. When it was time to go public, He and Yousef went to the university's Office for Technology Licensing. "We protected it for three years, which is hard for a public university," Yousef said. In early December, Yousef and He met with officials from food and pharmaceutical companies. Erin Bender, an associate with the Office for Technology Licensing, said several companies are interested in paenibacillin for both human and food use. If the antibiotic is used in food, she said, it could be available within a year or so. Human clinical trials, however, could mean five to seven years before it's available on the



OSU researcher Ahmed Yousef was looking for a food preservative when he discovered an antibiotic.

market. Because Yousef and He have never done human trials, the Office for Technology Licensing will help them connect with medical researchers. "We can't do it on our own," Yousef said. shoholik@dispatch.com

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