Packaged fresh asparagus had less bacteria and a longer shelf life when treated with X-ray irradiation, according to a study led by Joongmin Shin, a UW-Stout engineering and technology professor.

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UW-Stout research offers promise of fresher, safer asparagus

By UW-Stout News Bureau

MENOMONIE — For many people, eating a nutritious stalk of asparagus is a rite of spring. The tender green vegetable is one of the first kinds of local produce to appear in grocery stores each year.

But the asparagus growing season is short. And because commercially sold asparagus undergoes little processing and has a high respiration rate - the speed at which it breaks down - it usually lasts less than a week on store shelves.

What's more, fresh-cut asparagus is susceptible to bacteria because it rapidly loses moisture.

Recently published research led by Joongmin Shin, a UW-Stout assistant professor in the engineering and technology department, could help alleviate those problems.

Shin, who teaches a class on food packaging, and three colleagues from Michigan State University in East Lansing found asparagus exposed to low doses of X-ray irradiation had less bacteria and maintained sugar levels, thereby slowing the respiration rate and extending shelf life, possibly up to 75 percent.
"This is an effective way to control the respiration rate," Shin said. "X-ray treatment will enhance consumer safety by decreasing the number of viable microorganisms on asparagus."

The asparagus treated with X-rays was in a typical consumer package, a vacuum-packed tray covered by breathable plastic film.

Further tests must be done, such as for taste, before the study’s results could be implemented by distributors, Shin said.

Another hurdle, he said, is a lack of widespread public acceptance of irradiation. X-ray irradiation is the newest irradiation technology commercially used for foods. Other types are gamma ray and electron beam irradiation.

Irradiation is approved by the U.S. Food and Drug Administration, and the federal Centers for Disease Control and Prevention calls it safe and effective. No radioactive substances are used.

Michigan is one of the leading producers of asparagus. Imported asparagus, because of distribution time, would benefit the most from extended shelf life.

Researchers used asparagus from Peru in the study. It had bacteria many times higher than U.S. asparagus but still was safe to eat.