

Carbohydrate shows promise against food poisoning

By Steve Lundeberg
Oregon State University

CORVALLIS – Chitosan, a natural carbohydrate derived from crustacean shells, is showing promise as a weapon against a bacterium that annually sickens more than a million people in the United States.

After salmonella poisoning, the second-most common bacterial foodborne illness in the U.S. is *Clostridium perfringens* food poisoning.

Present in soil, decaying vegetation and the intestinal tracts of vertebrates, *C. perfringens* typically infects humans when they eat meat that hasn't been thoroughly cooked or properly stored, allowing the bacteria to multiply.

Symptoms of *C. perfringens* food poisoning include abdominal pain, stomach cramps, diarrhea and nausea; patients often mistake it for a 24-hour flu.

"People aren't dying, but they're getting sick," said Oregon State University researcher Mahfuzur Sarker. "And many times people don't report it, so there are likely way more people

getting infected than we know about."

Sarker and OSU graduate student Maryam Alnoman were part of an international collaboration that studied the effect of chitosan on *C. perfringens*. Chitosan is a linear polysaccharide that results from treating the exoskeletons of shrimp and other crustaceans with an alkaline compound.

The tests involved both laboratory growth medium – bacteria in solution – and cooked, contaminated chicken meat left for several hours at 98.6 degrees Fahrenheit. The study looked at the full life cycle of the *C. perfringens* bacterium, which produces tough, metabolically dormant spores that are able to survive many food processing approaches.

Results were recently published in *Food Microbiology*.

The researchers found chitosan blocked *C. perfringens* growth in cooked chicken and also found chitosan inhibits:

- Spore germination and outgrowth;
- The spore core from releasing dipicolinic acid, which is associated with an early step of spore

germination;

• The growth of vegetative cells – cells that are actively growing as opposed to producing spores.

"In lab conditions, low concentrations of chitosan were effective," said Sarker, professor of microbiology in OSU's colleges of science and veterinary medicine. "In meat, the concentration needs to be higher because there are a lot of ingredients in the cooked meat that can inhibit the activity of the antimicrobial chemicals.

"But the larger dose of 3 milligrams per gram of food is still a good dose that can be used in making food products. This is the first time chitosan was shown to work consistently both in lab conditions and in chicken meat."

Sarker said the next steps are researching chitosan's effectiveness in other types of meat and meat products

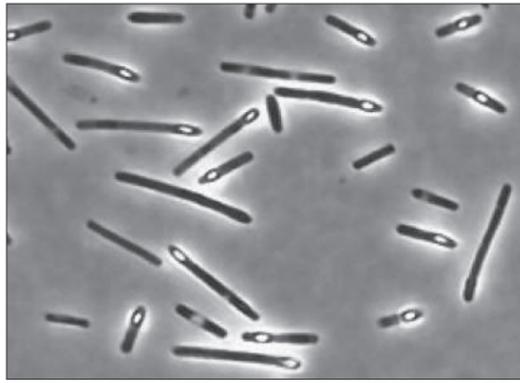


PHOTO PROVIDED

Clostridium perfringens cells.

and optimizing the conditions for using it. It's possible, for example, that chitosan may work best when combined with other food preservative chemicals such as sorbate and benzoate.

"It could be a combination of multiple agents," he said. "There are options we can try."

The OSU researchers collaborated with scientists at Taibah University in Saudi Arabia and Kasetsart University in Thailand.

Oregon State's Agricultural Research Foundation supported the study. Funding also came from the U.S. Army Research Office.

Legislature tackles health bills

By Kristena Hansen
Associated Press

PORTLAND (AP) — Lawmakers in Salem have a packed schedule ahead from now through April 18, the deadline for all proposals to advance out of their initial policy committee. What that means is, save for some exceptions, the window for introducing new bills this year is pretty much closed and Senate and House committees that handle education, health care and other policy-related topics have scant time to advance any bills still awaiting their first vote.

The House Health Care Committee has roughly 50 bills up for vote on its meeting agendas next week, including House Bill 3391, sometimes called the Planned Parenthood bill that'd require Oregon health plans, with the exception of religious-based plans, to fully cover

See **HEALTH BILLS** on page 24

Serving Sisters for 36 years!

Dr. Bonnie Malone, DC

Chiropractic Musculoskeletal Therapy & Exercise Counseling

Nutritional and General Health Counseling

Certified Cervical Cap Provider
(safe, non-chemical birth-control device)

COVERED BY ALL MAJOR AND LOCAL INSURANCE COMPANIES (by policy limits)

Sisters Chiropractic Clinic
16190 Hwy. 126, Sisters • 541-549-7141

Dr. Bonnie Malone

Sisters' population has become very proactive about taking care of itself to get the most out of life — and Dr. Bonnie Malone has been at the forefront of that movement for more than three decades.

"If I didn't find my work to be so effective, therefore rewarding, I would retire," says Dr. Bonnie Malone. "I just so enjoy helping people feel better and stay healthier."

Dr. Malone has been doing just that in her chiropractic practice in Sisters for the past 36 years.

Motion is life and life is motion — and chiropractic care can help you get back in motion when injury or the dents and dings of daily living take their toll. And it's always a good idea to visit the chiropractor once a year or every six months or so



for maintenance — to keep everything aligned and working properly.

Absolute Serenity Senior Care
Enriching the lives of those we serve, one day at a time.

David & Leah Tolle, Owners
Personalized, attentive care • Family setting
Private rooms with half bath • Outings

Call David for details, 541-848-3194

Helen's House ~ Corner of Canal & Greenwood, Redmond
Anna's Home ~ 192 E. Tall Fir Ct., Sisters
Pennington's Place ~ 182 E. Tall Fir Ct., Sisters
email: absoluteserenity@gmail.com

Enriching the lives of those we serve, one day at a time.

Absolute Serenity

Absolute Serenity has been bringing quality senior care in a home environment to Sisters for over seven years.

Absolute Serenity is now expanding its services, closing its Helen's House in Sisters and opening a new Helen's House in Redmond in August. They are currently taking reservations for that home and continuing their wait-list for their Sisters homes.

Transportation is provided for outings, events, shopping, drives and doctor appointments. Quality caregivers and managers hold a high standard for quality care and a comfortable, clean environment.

It's a family-friendly atmosphere with activities like weekly chair aerobics, bible studies, movie night, Bingo 2-3 times monthly, game nights, event nights, BBQs, daily and weekly walks.



Absolute Serenity's homes offer private rooms with half-bath and emergency call systems, and security and monitoring systems for safety.

All-inclusive rates include but are not limited to private room, care and services, meals, transportation, medication management and administration, doctor communications and activities.