



Dry kidney beans need to be boiled

A few weeks ago, I soaked some dry kidney beans to prepare them for some chili. My sister told me that before adding them to the chili, I should boil them to make sure the beans wouldn't make us sick. I did, but was that really necessary?

You've got a knowledgeable sister. Many people don't know the risk posed by dry red kidney beans when they're not cooked properly.

The problem isn't bacteria, but "phytohaemagglutinin," also called PHA, or kidney bean lectin. Lectin is a type of protein that performs all sorts of functions in both plants and animals. But some types of lectin, including this one, can be toxic at high levels.

If this lectin isn't destroyed by thorough cooking, you'll be sorry. According to the U.S. Food and Drug Administration's "Bad Bug Book," eating as few as four or five improperly cooked red kidney beans can cause severe vomiting within a few hours, followed by diarrhea.

Although some cases have required hospitalization, people normally feel better within three to four hours after symptoms start. That's one reason why authorities suspect there aren't many recorded cases of this particular foodborne illness in the U.S.: People usually begin to get over the illness just about the time they might think of

contacting their doctor.

Other types of beans also contain PHA, but it's much more concentrated in red kidney beans. For example, the unit of measurement for the toxin is called "hau," for "hemagglutinating unit." Raw red kidney beans have anywhere from 20,000 to 70,000 hau, but that drops to 200 to 400 hau when the beans are fully cooked — not enough to be a problem. White kidney beans, or cannellini beans, contain only about one-third of the toxin as red kidney beans. Broad beans, or fava beans, contain just 5 to 10 percent of what's in red kidney beans.

The FDA recommends these steps for preparing dry red kidney beans:

- Soak the beans for at least five hours in water. It's not a bad idea to change the water periodically, but it's not necessary for safety.

- Drain the beans from the final soaking water.

- Boil the beans in a pot of fresh water for at least 30 minutes. Note: Research indicates that the toxin is destroyed when boiled at 212 degrees F for 10 minutes, but scientists recommend 30 minutes to be certain the beans reach the proper temperature for the amount of time necessary. Don't use a slow cooker: It likely won't get hot enough.

Chow Line is a service of Ohio State University Extension, the Ohio Agricultural Research and Development Center, and the College of Food, Agricultural, and Environmental Sciences. Send questions to Chow Line, c/o Martha Filipic, 2021 Coffey Road, Columbus, OH, 43210-1044, or filipic.3@osu.edu.



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