Professor Yoshikazu Nishikawa Laboratory, Graduate School of Human Life Science

Professor Yoshikazu Nishikawa

Professor Nishikawa specializes in bacteriology and has been carrying out research regarding food safety including food poisoning and infection. He studies disease causing bacteria including *Escherichia coli (E. coli)*, test methods and measures against contamination sources. Although infection by bacteria for a large part depends on the host's immunity status, immunity is generally compromised with aging. From this, Dr. Nishikawa began studying the anti-aging effects of food ingredients.

He decided to focus on *Caenorhabditis elegans (C. elegans)*, a roundworm, as a model for experiments in this research. The roundworms have a lifespan of 3 weeks so the study results of anti-aging effects can be obtained in a short period. They are 1 mm in length and easy to grow in a laboratory. Because they are a multicellular organism, roundworms undergo an aging process similar to that of humans, making them suitable as a model to evaluate anti-aging effects. In fact, results already show that when roundworms take in food poisoning bacteria, their lifespan is shortened.

Dr. Nishikawa has been searching for effective substances for anti-aging in various food ingredients. As a result of his research, in 2007 he reported the world's first experimental example that lactic acid bacteria have a life-extending effect. He also showed that roundworms become highly resistant to *Salmonella* after intake of lactic acid bacteria, resulting in an extended survival rate.
He says, "The results in roundworms of course cannot be readily applied to humans, but they can function as the base for fruitful and practical further research."

**C. elegans* (Close-up picture captured with a differential interference microscope; the green-glowing parts are enterohemorrhagic *E. coli* O157:H7)

Researchers in Focus

Professor Yoshikazu Nishikawa,
Graduate School of Human Life Science

Growing vegetables is Dr. Nishikawa's, who is usually too busy to take a break, main solace. Inside the laboratory building there is a completely pesticide-free farm field. Depending on the season, Dr. Nishikawa grows various vegetables such as turnips, Japanese radish and Chinese cabbage with his students. This is intended to help the students understand the difficulty of completely pesticide-free production and to learn about food from a production site perspective. This farming and spending time with students are his way to refresh his mind.