Sustained consumption of dairy products containing *Lacticaseibacillus paracasei* strain Shirota suppresses the accumulation of aflatoxins (harmful substances produced by fungi) in the body, confirmed in Malaysian Adults

TOKYO, May 16, 2025 - Yakult Honsha Co., Ltd. (President: Hiroshi Narita) and Universiti Putra Malaysia (Selangor, Malaysia) have focused research activities on aflatoxins, harmful substances produced by fungi that contaminate food, particularly in warm and humid climates, posing serious health risks. These two organizations carried out a clinical trial in which dairy beverages containing *Lacticasebacillus paracasei* strain Shirota*1 (LcS) were consumed by healthy Malaysian adults who are routinely exposed to high levels of aflatoxins. The trial indicated the following:

After 12 weeks of consuming the beverages, the concentration of aflatoxins in the participants' urine was significantly lower in the group of people who regularly consumed the beverage containing LcS compared to the group that consumed the placebo beverage that did not contain LcS.

The results of this trial suggest that sustained consumption of dairy beverages containing LcS prevents the accumulation of aflatoxins in the bodies of Malaysian adults, which may in turn reduce the risk of adverse health effects. The results of this research contribute to the expectation that, from a public health and preventive medicine perspective, regular consumption of beverages containing LcS contributes positively to maintaining the health of people living in warm and humid climates such as in Malaysia, where the conditions often promote fungal growth and the production of aflatoxin that can later contaminate foods.

The results of the research were published in the online version of the academic journal *The Journal of Nutrition* on April 16, 2025.

*1 This bacterium was previously called *Lactobacillus casei* strain Shirota.

1. Background

Aflatoxins are harmful chemicals produced by certain molds. In warm and humid regions like that of Malaysia, mold can easily develop during the storage of crops and animal feed, which can lead to aflatoxin contamination in the food chain. Aflatoxins are carcinogenic, and exposure through ingestion or other routes can cause serious health problems. In fact, Malaysia has observed an increase in cancer rates due to aflatoxin exposure in food products. Providing a method for inhibiting the accumulation of aflatoxins in the body derived from food products and reducing the risk of exposure-related health problems are essential from a public health and preventive medicine perspective.

Previous basic research has suggested that LcS and aflatoxins may bind together, which prevents the absorption of aflatoxins into the blood stream, thereby facilitating their excretion from the body. Thus, this study evaluated the effects of sustained consumption of dairy beverages containing LcS among Malaysian adults who are exposed to aflatoxins. This study also analyzed lifestyle factors based on the backgrounds of the study's participants to assess the influence of lifestyle factors on aflatoxin exposure.

2. Study details

(1) Methodology

A total of 535 healthy Malaysian adults aged 20 to 60 were screened, and 174 individuals with high levels of aflatoxins in their urine and blood serum were subsequently recruited to participate in the trial. Participants were randomly divided into a probiotic group that consumed dairy beverages containing 30 billion units of LcS (87 people) and a placebo group that consumed beverages that did not contain LcS (87 people), with each group drinking two bottles of their assigned beverage every day for twelve weeks (randomized, placebo-controlled, double-blind trial*). After the end of the consumption period, a four-week follow-up observation period was established. Aflatoxin levels in urine were measured every two weeks, and aflatoxin levels in blood serum every four weeks, beginning from the start of the consumption period. Additionally, the relationship between socio-demographic factors (e.g., age, gender, dietary habits) and aflatoxin levels in the body was statistically analyzed at the beginning of the trial.

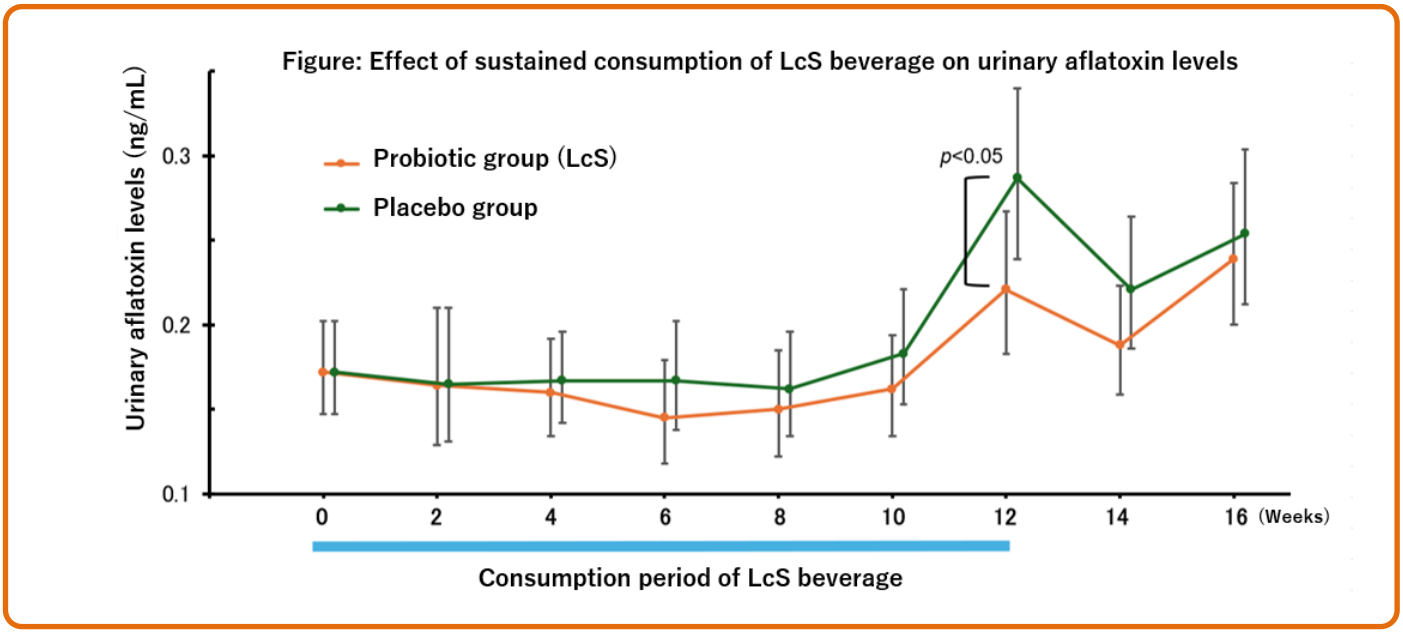
*Participants in the study are randomly assigned to groups, and the details of these assignments are not disclosed to the participants, researchers, or facility staff involved in the conduct and evaluation of the study. A placebo beverage, which resembles the test beverage in color and taste but does not contain the active ingredients, is used for analytical comparison.

Results obtained from appropriately conducted randomized, placebo-controlled, double-blind trials are considered scientifically reliable.

(2) Results

Inhibitory effect on the accumulation of aflatoxins in the body

In the twelfth week of consumption, the concentration of urinary aflatoxins was significantly lower in the probiotic group compared to the placebo group (Figure).



3. Observations

The results of this study suggest that sustained consumption of dairy beverages containing LcS may prevent the accumulation of aflatoxins in the bodies of Malaysian adults who are routinely exposed to high levels of these toxins through their diet. Previous basic research indicated that LcS could bind aflatoxins and eliminate them from the body, and this trial, conducted with healthy people, provided supporting results.

It was also statistically shown that individuals with greater knowledge about aflatoxin contamination exhibited lower aflatoxin levels in their blood serum, and that those who consumed more grains exhibited higher urinary aflatoxin levels.

4. Significance and Prospects of this Study

Based on the findings of this trial, sustained consumption of dairy products containing LcS is expected to prevent adverse health effects caused by aflatoxin exposure from food in warm and humid regions, where the conditions are favorable for fungal growth and aflatoxin production. We will continue to further verify the usefulness of dairy products containing LcS in addressing common health challenges in these regions.

Additionally, we will continue to disseminate information to help more people understand the importance, from a public health and preventive medicine perspective, of broadly and accurately understanding the danger of aflatoxin contamination in warm and humid regions, where aflatoxin contamination is prevalent.

5. Publication information

Name of the journal: *The Journal of Nutrition*
(https://doi.org/10.1016/j.tjnut.2025.04.014)

Title: Impact of probiotic *Lacticaseibacillus paracasei* strain Shirota (LcS) on aflatoxin exposure among healthy Malaysian adults: a randomized, double-blind, placebo-controlled intervention study

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