Symposia | シンポジウムB

Thu. Aug 28, 2025 9:00 AM - 11:45 AM JST | Thu. Aug 28, 2025 12:00 AM - 2:45 AM UTC Room D(2F 124)

[SYB4] Innovations in Japanese Cheese and Dairy Products

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10:40 AM - 11:10 AM JST | 1:40 AM - 2:10 AM UTC

[SYB4-04] Development and future prospects of surface-ripened cheese with koji mold

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Keywords：cheese with koji mold

【Speakers】Biography of Kaoru Sato: Graduated from the Graduate School of Agriculture, Tohoku University in 1985 (Master's Course), joined Snow Brand Dairy Industry Co., Ltd. in the same year, received a Ph.D. in Agriculture from the Graduate School of Agriculture, Tohoku University in 1996, became a professor at Hokkaido Bunkyo University in 2013, associate professor at the Faculty of Applied Life Sciences, Nippon Veterinary and Life Science University in 2016, and has been a professor since 2020

Koji mold (*Aspergillus spp.) is* essential for the production of miso, soy sauce, Japanese sake, made from cereal crops, including rice, wheat, and soybeans. Koji mold is also the unique and inherent microorganism originated from Japan. It is well-known that Koji mold produces various enzymes such as proteases, lipases, and amylases, and so on. We focused on the Japanese brewing technology, and tried to apply koji mold to cheese ripening. However, the various enzymes from Koji mold may lead to a decrease in palatability due to excessive degradation of proteins and lipids. Therefore, we selected koji mold suitable for ripened cheese, established the manufacturing process, and optimized the aging conditions. We introduce an example of the development and practical application of koji mold-ripened cheese (Koji cheese) as a unique cheese through industry-academia collaboration.1) Selection of koji mold for cheese and establishment of the manufacturing process for Koji cheeseIn order to select koji mold suitable for cheese, we obtained koji mold strains from a specialist koji starter manufacturer. The manufacturer was supplied several koji mold strains that have already been applied to food, have a fast growth rate, and have different enzyme activities. In the first evaluation, the colors of the Koji cheeses were obtained the various colors, such as white, yellow-green, green, and shown the different textures. From the comparison of enzyme activity, we decided to use a koji mold strain (*Aspergillus oryzae KC43*) for cheese.In order to achieve the social implementation of Koji cheese, the manufacturing process was used a soft type cheese as a reference. The ripening conditions need to be set to a temperature suitable for the growth of koji mold. The temperature of around 30°C is not common for cheese production, but it is possible to obtain a soft type cheese with a strong umami taste in a short period. We thought that it would have advantages in terms of production efficiency.2) Characteristics of Koji cheese and its social implementationThe surface-ripened cheese with koji mold contains about 5 times more glutamic acid than

commercially available Camembert cheese. The amount of glutamic acid is similar to that of hard type cheeses such as raclette. Furthermore, from the analysis of the aging components and aroma components in Koji cheese, it was clarified that the characteristics are different from Camembert cheese and blue cheese. Several cheese producers have already supplied the Koji cheese. Through the fusion of Western European cheese culture and Japanese brewing technology, we hope that Koji cheese, a cheese originating in Japan, will spread widely and contribute to the dairy industry in Japan.