

Microorganism test worksites changed by CompactDry

The increasing need for fast and easy microorganism tests in conjunction with the systemic implementation of HACCP

Contributing to solving various problems, such as increasing numbers of samples and insufficient human resources

The systemic implementation of HACCP in the food business has increased the necessity for microorganism tests for raw materials, final products, intermediate products, in manufacturing environments, and the like. Meanwhile, it has been pointed out that there are problems with the conventional microorganism testing methods, such as the official methods. For example, testing requires a lot of time and effort. The solutions that have garnered attention for addressing such problems are fast and easy microorganism testing kits.

In this interview, we look at cases from Hokkaido Coca-Cola Bottling and Saizeriya, about how they effectively apply fast and easy microorganism testing methods in their quality control and hygiene control. (Location: Meeting room at Nissui Pharmaceutical Co., Ltd.)



Mr.Kunihiro Kobayashi

Hokkaido Coca-Cola Bottling Co., Limited
Director of Quality Control Department, Sapporo Factory, Hokkaido Coca-Cola Bottling, Co., Limited. He was involved in quality control after he joined the company. Now, he is a Quality Supervisor at the Sapporo Factory.



Ms.Rina Senda

Saizeriya Co., Ltd.
Manager of Quality Control Office, Saizeriya. After three years of experience in restaurant operation, she was assigned to the Quality Assurance Office of the Headquarters. Now, she is involved in hygiene control at restaurants.



Mr.Eiji Ohashi

[Interviewer]
Director of Food Products Analysis Center, Nippon Suisan Kaisha, Ltd. He works for Nippon Suisan Kaisha, Ltd. He has worked as the Director of Food Product Analysis Center and as the Director of Vital Functions Scientific Research Center.

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Circumstances that led to the deployment of fast and easy microorganism testing methods

An upward trend in the number of test items, in environmental tests and the like

Ohashi: To begin, please tell me about your system of microorganism testing and about how fast and easy testing is deployed at your companies.

Kobayashi: In the Coca-Cola Group, we have established a quality control office at each factory, which conducts microorganism tests, physical and chemical testing, and the like. The main products of our company were conventionally carbonated beverages, such as Coca-Cola and Fanta, and the microorganisms that had created quality and safety problems were only mold and yeast. In recent years, we increased the number of chemically neutral beverages that we produce, such as teas, and this has increased the necessity for us to treat the controlling of general microorganisms, not only mold and yeast, as a serious issue. Also, during production, we package our products in a sterile manner, so we need to constantly check that our production environments are free of microorganisms. We have also imposed a rule that products cannot be shipped until they have achieved a passing grade in the test results. Therefore, since microorganisms need time to cultivate, we need a storage space for cultivation, but we also need a space for storing products that are awaiting results.

In such circumstances, we started using CompactDry, a dry medium provided by Nissui Pharmaceutical, as a fast and easy testing method. This has not only allowed us to process a large number of samples, but it has also made it possible for us to quickly perform tests when there is an urgent request for testing.



CompactDry from Nissui Pharmaceutical, used as a fast and easy testing method



Fast and easy tests microorganism tests are also conducted at Saizeriya's factories and restaurants

Senda: Saizeriya has four factories in Japan, each of which has a Quality Control Division. This division performs testing on raw materials, intermediate products, and final products. It also conducts testing of externally procured ingredients, testing for verifying process controls, hygiene testing in production environments, and storage testing of products to be shipped.

In principle, we allow each factory to use their own discretion in establishing methods of microorganism testing. Some factories have switched to fast and easy testing methods for some testing, and some factories use fast and easy testing for most of their testing. The Quality Control Office of our Headquarters communicates closely with the Quality Control Division of each factory, and checks for problems in hygiene control at factories and implements hygiene-related education where necessary. The number of samples that we use for testing has been increasing, and we are experiencing the merits of using fast and easy testing methods.

Also, the Quality Control Office at our Headquarters conducts hygiene checks for our over 1,000 restaurants inside Japan. We take samples that we have wiped up in our restaurants and return them to our Headquarters, where we conduct fast and easy testing. The number of samples for the hygiene checks at our restaurants is sure to increase, so fast and easy testing yields massive results.



CompactDry can handle a very large number of test samples

Ohashi: Please tell me about how CompactDry is used at Hokkaido Coca-Cola Bottling.

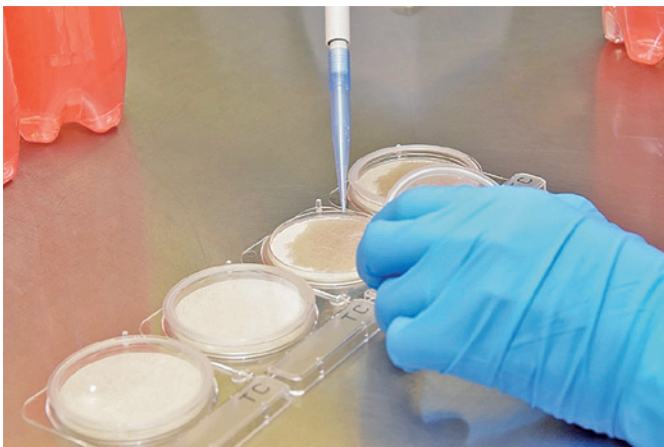
Kobayashi: Currently, we process about 90,000 microorganism samples per year at our factory. Twenty thousand of these are microorganism tests, including for environmental organisms, by using CompactDry. Placing importance on process control has drastically increased the number of environmental tests. When we initially started packaging our products in a sterile manner, we needed to start conducting more tests than usual, and there were cases where we conducted around 1,000 tests in a single day. Now, we conduct up to 350 tests a day, at most. If we tried to handle such a large number of tests using the pouring method, it would require an extremely large amount of time and effort to produce the culture medium and count colonies, and we would need an adequate culturing space.

Ohashi: Hokkaido Coca-Cola Bottling also does sanitation for dispensers.



The number of tests conducted using CompactDry at Coca-Cola factories has grown to 20,000

Kobayashi: We do sanitation for the approximately 8,000 dispensers installed in Hokkaido, and we implement testing for water and equipment to check that they are suitable. The number of samples has reached around 15,000 per year, but CompactDry has enabled us to handle this number of samples. While on the subject, these samples are collected on site by sanitation supervisors, who then send them to our Quality Control Department. These sanitation supervisors are not professionals at conducting microorganism tests. Therefore, it was essential that the culture media that we use have the following characteristics: the appropriate sampling can be performed by anyone, and the culture media is tightly sealed during transport so as to significantly reduce the risks of contamination. CompactDry is the culture medium that satisfies both of these requirements.



Testing being performed at Coca-Cola factory



Appropriate sampling can be performed, even by people who are not professionals at microorganism testing



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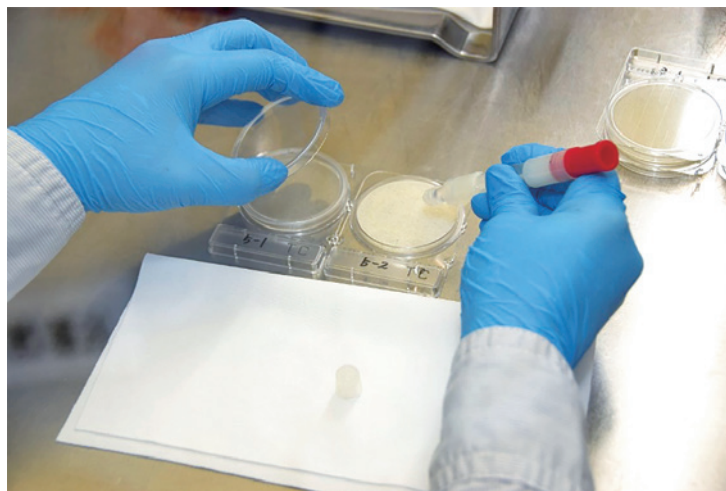
Effects of deploying fast and easy microorganism testing method

To allow anyone to perform reliable testing within a shorter period of time

Ohashi: Fast and easy testing methods give you stable test results, even if you don't have any special knowledge or skills.

Kobayashi: It is not possible to eliminate the possibility of human error, in particular, the risk of contamination, when conducting tests, regardless of how skilled the techniques of the supervisor are. Fast and easy testing methods can clearly reduce the risks of contamination because certain work, such as preparing culture media, is not required.

Senda: Our company assigns staff members who have not received any specialist training to microorganism testing. Therefore, we feel that there are extremely significant merits in the fact that fast and easy testing methods yield stable test results, even if we don't have any special knowledge or skills, and that we can perform stable testing after providing the relevant education over a short period of time.



Reducing risk of contamination with fast and easy testing methods

Ohashi: A major issue in testing work is the need to eliminate inconsistencies in performance between the people who conduct these tests.

Kobayashi: One of our company's measures to address this is to assign employees to the Quality Control Department, and then have them participate in external precision control, hosted by Nissui Pharmaceutical and other organizations. Staff members who have participated in the survey are responsible for instructing the next group of people assigned to the Quality Control Department. We anticipate that having them teach others will further deepen their understanding and experience in testing.

Senda: Every month, our company sends samples that we had tested by an external testing organization to the Quality Control Division of each factory, and we check for inconsistencies between the test results of the factories. We call these "collaboration tests". While on the subject, we are currently considering standardizing the testing methods between each factory based on the results, etc. of these collaboration tests.



Establishing, in advance, the policies for dealing with positive results

Ohashi: Are there any points that need to be kept in mind so that you can more effectively make use of fast and easy methods?

Kobayashi: When adopting a new fast and easy method, you need to thoroughly investigate the correlation of the method with conventional testing methods. We conducted extensive investigations before switching to CompactDry. Also, we encountered problems regarding our staff's knowledge of microorganisms and testing. In the event of a problem regarding the control of microorganisms, we would perform work with the microorganisms. For example, we would observe them with microscopes, perform Gram staining, and extract bacteria from colonies to identify it. To that end, the staff members that we assigned to the Quality Control Department had to first learn the basic techniques for working with microorganisms, such as how to use microscopes and how to operate burners in an open environment and in a sterile manner.

Senda: There are major merits in using fast and easy methods, but I think there are some points that need to be kept in mind for effectively utilizing the test results. For example, with standard agar media, we can obtain information such as which type of bacteria is the most common, from looking at the characteristics of the colony. However, we cannot assess the bacterial flora with a fast and easy method.

Also, the official E. coli tests, for example, indicate specific protocols, such as presumptive tests and confirmation tests. For fast and easy methods as well, companies need to first establish the methods for responding to positive and pseudo-positive results.



Investigating the correlation of CompactDry with conventional testing methods before deploying it

Ohashi: Microorganism tests for food products require constant changes so that they can suit the needs of the times and the environment. It is clear that fast and easy testing methods yield some major results, for dealing with issues such as the systemic implementation of HACCP and insufficient human resources.

I think that correctly understanding the characteristics of fast and easy methods will allow us to utilize them even more effectively and efficiently. Also, with regards to the testing methods and testing system at our company, ensuring external transparency (so that we can clearly explain the situation to clients and consumers), will, as a result, allow our testing rooms to ensure reliability. Going forward, we would like to make the most of the effects of our deployment of fast and easy methods.



Fast and easy testing methods, the suitability of which has been confirmed, helps you deal with insufficient human resources and environmental issues

For construction, operation, and maintenance control of HACCP, it is important to utilize the results of microorganism tests of raw materials, final products, intermediate products, and production environments utilized for improving hygiene control and process control. Naturally, the results of microorganism tests are also required for developing new products and for other activities. Therefore, in recent years, many food product facilities have been using more samples from microorganism tests.

However, it has been pointed out that the conventional microorganism tests using the official methods have various problems. For example, creating culture media for the samples requires a lot of work, cultivation requires a lot of time, and the different skill levels of the people who perform these tests may result in inconsistencies in the test results. Recently, testing rooms also require measures against certain problems, such as insufficient human resources, and for work style reforms, and also require that burdens on the environment, such as from waste products, be reduced. Also, testing requires measures for labor-saving, streamlining, time-saving, and the like. Moreover, tests for confirming that products comply with regulations stipulated by the Food Sanitation Act must be conducted using the official methods. However, independent tests don't need to follow official methods.

Under such circumstances, I think that, for HACCP (process control) verification and the like, a fast and easy alternative, that can reduce labor and work time and allow anyone to produce the same results within a short period of time, is an effective choice. In particular, the best option is to effectively utilize a fast and easy testing kit, the suitability of which has been recognized by third-party organizations outside of Japan (AOAC, AFNOR, MicroVal, NordVal, etc.).

