

Mold-Risk Analysis for Food Items

I · Introduction

Once the food becomes moldy, its appearance, color and properties start changing. However, in the early stages of mold growth, we may not be able to identify whether the food is moldy at plain sight. The potential harm and seriousness of these tiny invisible molds to human health are actually something that most people ignore.

In 1960, there was a major occurrence in which thousands of turkeys and ducks perished in the United Kingdom. After further analysis and research on the cause of the incident, scientists confirmed that the cause of the death of poultry was the toxic substance Aflatoxin, produced by *Aspergillus flavus* in their feed. In different instance, in 1974, nearly 400 people in India fell ill due to having eaten corn that had been contaminated by *Aspergillus flavus*; hundreds of them were also infected with hepatitis and died, which drew global attention.

At present, there are about 150,000 known mold species in the world. The above-mentioned are just a few examples of the many cases of food hazard problems caused by mold. It can be observed that the harm of mold is not only limited to substances or

areas with high water content. It can also deeply affect animals, and even threaten the safety of humans.

In addition to textile and leather testing services, YCM Microbiology Research Center (MRC) provides a series of food-related testing services, from the identification of a suspected mold body found in food, to the analysis of potential mold risk of food-related raw materials, all the way to environment testing of food factories or in-depth analysis of mold sources, to avoid potential food safety problems.

While performing food inspection, Brand F observed some food products that could have been affected by mold, so it sought the assistance of YCM MRC to investigate whether the food was indeed moldy and the cause of this incident.

II · Results and discussion

The suspected moldy food (Fig. a1) sent by Brand F for testing was determined to be moldy after testing performed by the YCM MRC. After further raw material testing, it was found that the potential mold risk of the involved food raw materials (Fig. b1) was high.

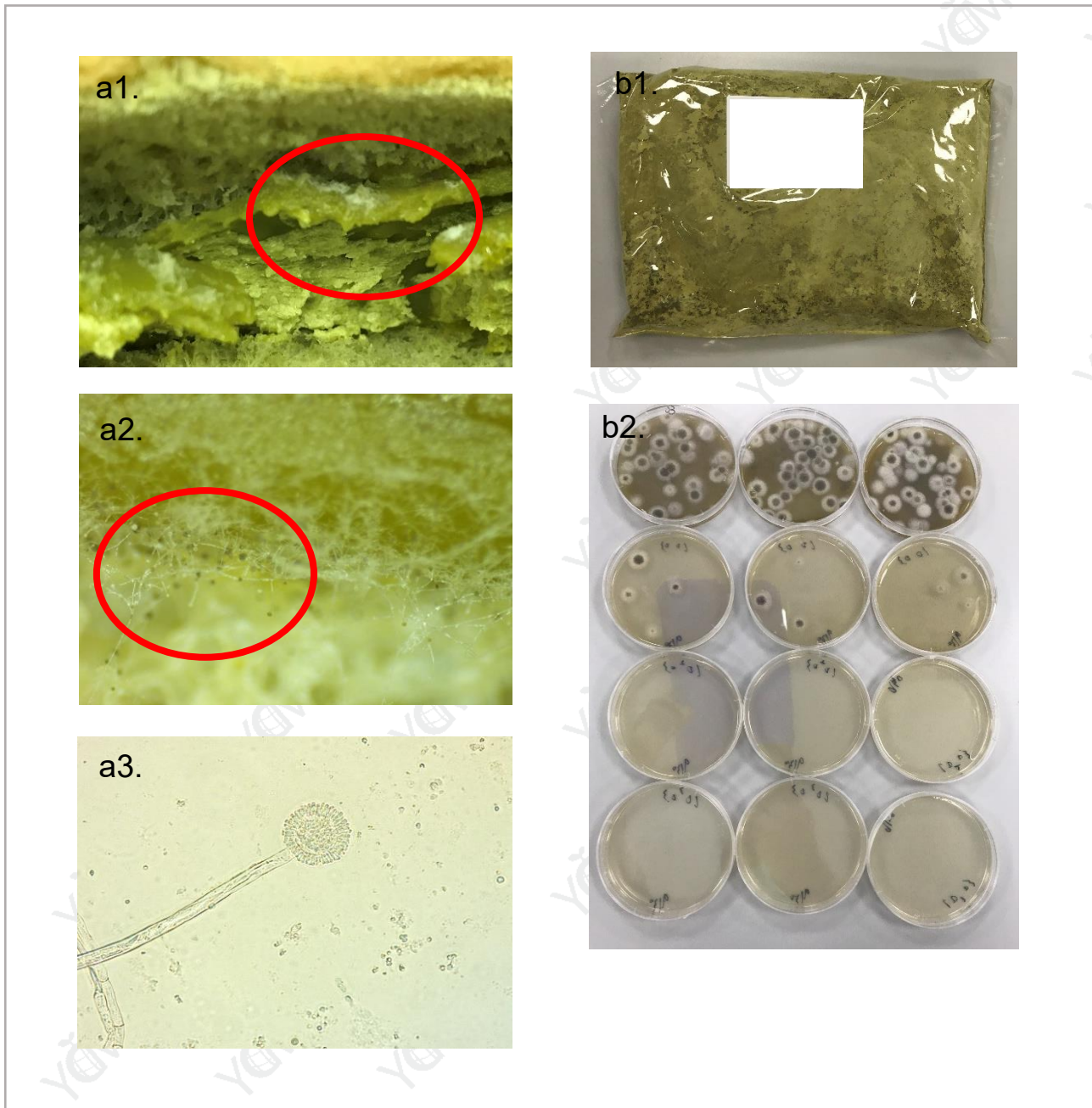
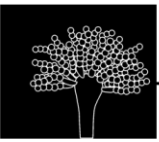
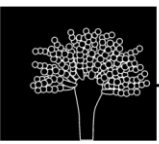


Figure 1. Products sent by Brand F for testing

a1 – a3. The suspected moldy food of Brand F had been observed to present mold growth structures;
b1 – b2. The food-related raw materials provided by Brand F were determined to have a high potential for mold risk growth after testing.



III · Conclusion

YCM MRC has varied professional technical services to solve clients' different mold pain points. In this entrusted case of Brand F, YCM MRC firstly used the technology of "Mold Characteristic Analysis (MCA)" to detect and analyze if the suspected moldy items of Brand F were indeed moldy, and this mold was found to be a common specie that causes food to turn moldy - *Aspergillus* sp.. Subsequently, YCM MRC further analyzed the potential mold risk of its food-related raw materials, and the test results showed that the raw materials had a high mold risk, which may be one of the reasons for the occurrence of moldy food.

Furthermore, YCM's team conducted an

environmental audit for the factory of Brand F, singling out factors that may lead to mold growth and provided improvement strategies. Finally, after a summary meeting with Brand F, our team showed the Brand which were those contamination sources. A major one being that the checks from the manufacturing environment for the raw materials supply were not complete, which would eventually affect the quality of the subsequent finished products. Lastly, YCM will be conducting potential mold risk assessment for the raw materials of Brand F in the future, pointing out high-risk raw materials before putting them into production, so as to avoid food safety problems derived from mold affections.