Mold prevention strategy for wooden kitchenware

I、Introduction

In spite of Brand A having appropriate preventive measures for products with high mold risk, their products are still susceptible to mold issues. This is mostly due to the climate present in the island of Taiwan, often under the effect of high humidity and heat. For this reason, Brand A approaches YCM in search of a better strategy for mold prevention and product preservation.

Optimizing the quality control during storage, transportation, and selling points is the main focus in this case. Usually, restoring the quality of damaged wooden products proves to be challenging. Moldy products frequently cannot be sold and are ultimately discarded, which results in losses to brands. YCM Microbiology Research Center's big database demonstrates that the moisture content of items usually exceeds 10% when the relative humidity is above 60%, which favors mold growth. Among the main species causing mold issues on wooden products, we find: *Aspergillus flavus*, *Aspergillus niger*, *Cladosporium* sp. and *Trichoderma* sp. Once a wooden product gets moldy, black and green spots will appear visible, thus, filamentous structures may show up. In response to one of these cases, YCM conducted an in-depth research and analysis.

II、Results and discussion

After several days of research, it was found that the control group had the usual signs of mold, but no mold was observed in the special treatment group, as shown in Fig 1.
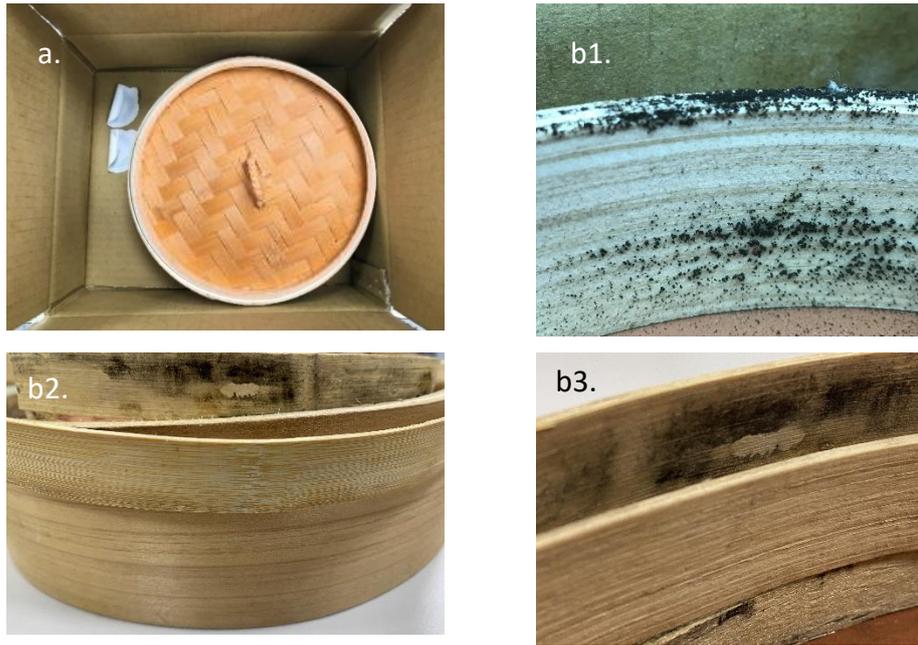
Fig 1. Few days after the wooden kitchenware is tested. a. Schematic diagram of the special treatment group (the picture is not the product of Brand A), there is no mold growth; b1-3. Control group, obvious mold growth can be observed.

III、Conclusion

According to the analysis by YCM Microbiology Research Center, the nutrient source of wooden kitchenware is suitable for the growth of specific mold species such as *Aspergillus* sp. (Fig 2), *Cladosporium* sp. (Fig 3), and *Trichoderma* sp. (Fig 4). Therefore, this product is considered to have a moderate-high risk level of mold under suitable environmental conditions, and proper mold prevention mechanisms are required to ensure the quality of the finished product during storage and transportation.

We are truly appreciative of the confidence that Brand A has placed in us. Through precise analysis, we are able to advise Brand A with a new mold prevention strategy and improved methods that are aimed at helping Brand A with the quality control of their products. Moreover, this case also allows YCM Microbiology Research Center to broaden the scope of industries it attends.

Fig 2. The most suitable growth conditions for *Aspergillus* sp. are found at temperatures of 20-40°C and a relative humidity of 70-85%. Among its most suitable growth areas, we find grain, textile, wood, paper and glass.

Fig 3. The most suitable growth conditions for *Cladosporium* sp. are found at temperatures of -6-32°C and a relative humidity of 85-88%. Among its most suitable growth areas, we find building materials, wood, paper and textile.

Fig 4. The most suitable growth conditions for *Trichoderma* sp. are found at temperatures of 10-35°C and a relative humidity above 90%. Among its most suitable growth areas, we find leather, textile, wood, paper and plants.