

## **Mold property assessment of novel biomaterials**

### **I · Introduction**

In an era of carbon reduction, the entire supply chain is gradually changing. A lot of industries and brands have been looking for, and starting to apply novel eco-friendly materials for their products to replace non-reusable or animal-based materials previously employed, such as cowhide, pig skin, etc. Novel material implementation is done with the goal of achieving energy savings, carbon emissions reduction and sustainable development.

In recent years, novel materials that replace animal-based ones and synthetic fibers have experienced a stronger demand in the market. Found among them we have cactus leather, pineapple fiber fabric or plastic particle fabric. These novel materials need to undergo a series of physical or chemical performance tests before the production process. However, these rarely delve into their moldy property's detection. These novel materials usually contain carbon sources, like plant-based materials, mainly cellulose, hemicellulose, lignin or pectin, all

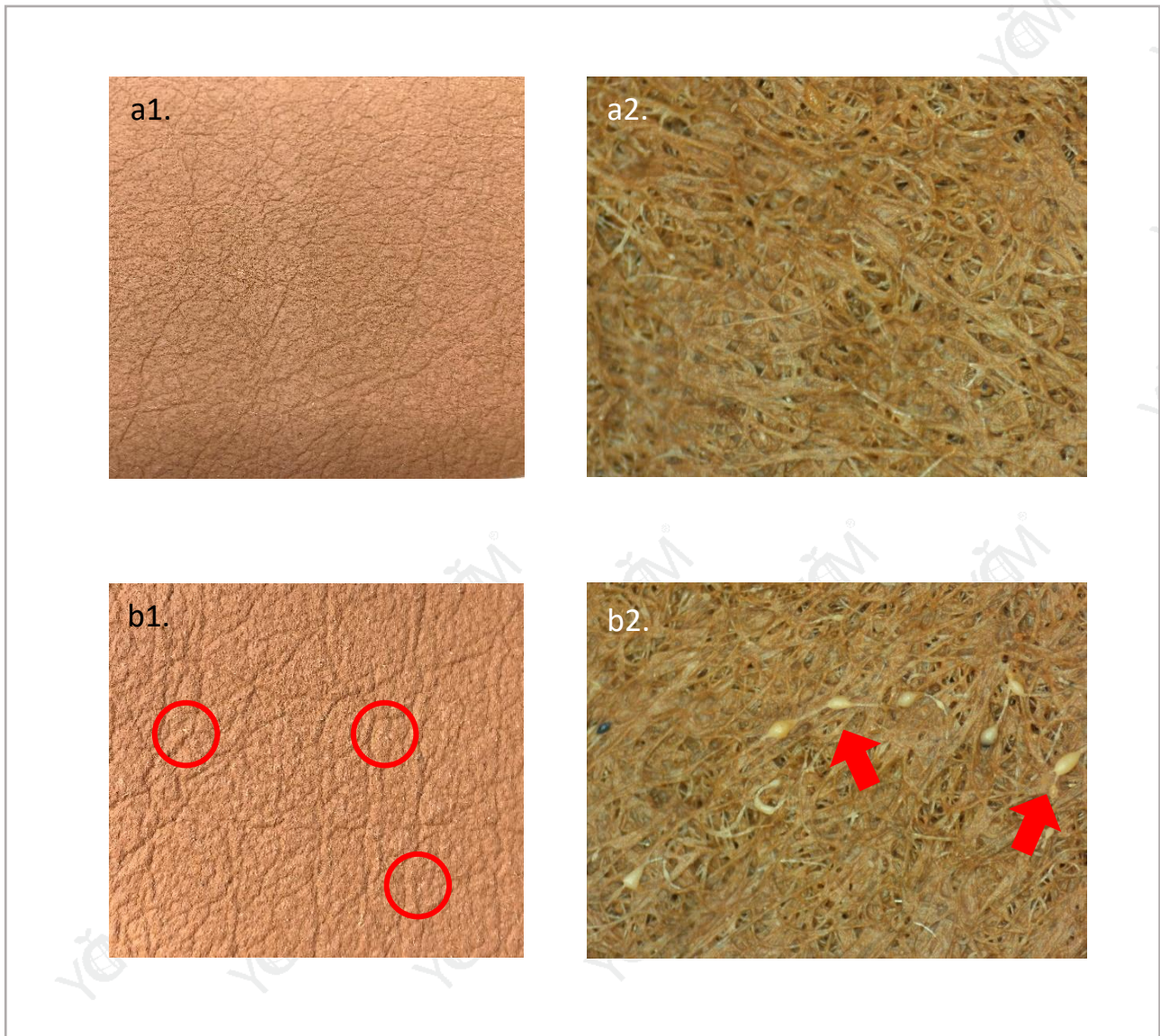
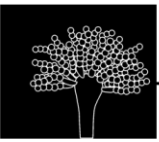
of which may provide nutrients for mold growth, including sugar/polysaccharide, carbon and nitrogen. As a result, there will be various levels of mold risk inherent to the materials or products.

For these reasons, material mold property assessment (MPA), a technical service developed by YCM Microbiology Research Center (MRC) allows clients to deeply understand the mold risk before processing any production for a better understanding of the material's storage management and application. Recently, Brand P entrusted YCM to understand the mold risk of fungal leather, a novel material they developed.

---

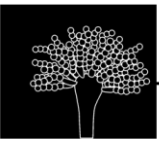
### **II · Results and discussion**

The novel material of Brand P, fungal leather after MPA (Figure 1). The mold risk of this novel material is determined to be of a high level.



**Figure 1. The novel material of Brand P - fungal leather**

a1 – a2. The novel material before test was conducted; b1 – b2. The novel material after test was conducted, mold growth structures are pointed out by the arrows.



### III 、 Conclusion

The MPA service of YCM MRC is based on four major indicators established by mold growth-related parameters for its evaluation, and the results are classified into four risk levels.

In this entrusted case, the YCM MRC evaluated the samples according to these four indexes, which were used to analyze the growth characteristics of mold on the novel material of Brand P. At the same time, the characteristics and structure of the novel material itself were analyzed, and it was understood that once the mold spores are

attached to the novel material, it would lead to large areas of mold contamination in a short period of time.

Apart from the evaluation results as a reference for the brand's product development, the YCM MRC also provided suitable some preservation suggestions for this novel material, such as appropriate conditions set up for the warehouse space or establishing a material quality inspection mechanism. This helps the brand in controlling the mold risk of this material or its related products in the future.