

## SMART VIEW AND ANTIFUNGAL ENTO CABINET (SVAFEC)

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**Highlights:** This article highlights on an effective entomology cabinet with a smart view of high visibility screening and antifungal treatment by using UV light radiation. This innovation is meant to introduce a modern entomology storage/cabinet that capable to combat fungal infestation on museum collection particularly on fragile and delicate insect specimen.

**Key words:** *smart entomology cabinet, uv light, antifungal, insect specimen*

### Introduction

Insect collections are becoming even more important to taxonomic and conservation studies. Much effort is spent to maintain collections and prevent damage from fungal infestation. Fungi is a significant problem for any collection and it damages specimens, makes them visually unappealing, and renders them useless for research. For fungal development they could survive in lower relative humidity than bacteria and could produce spores easily dispersed with moving air. Fungicidal effects of UV light irradiation on museum collection was found to be effective in combating fungal infestation.

Normally, the Insectarium stored hundreds of insect specimens. Most of the specimens were deposited for educational and research purposes. Nevertheless, the widespread mold grow on specimens across several orders of insects and in all the containers. This infection was most likely caused by the addition of specimens that were killed and stored in a freezer, then pinned without providing adequate time for accumulated condensation to dry. The mold consisted of grey hyphae and fruiting bodies covering several specimens in all the boxes.

Apart from that, the regular inspection on the specimens had triggered vibration and caused several damaged on the fragile, delicate and aged specimens. The vibrations occurred when the drawers were pulled out from the cabinet manually, subsequently it disturbed the collection stay level and damaged the structure of the insect morphology particularly the soft wings and antennae. The current condition of entomology cabinet is that it poses no window for clear visibility screening. The drawers were arrange closed to each other and this require curator to inspect the specimens by pulling drawers one by one manually. This practice could be improved by innovating a holistic solution for both fungal infestation and low visibility screening.

### Content

#### 1. Description of product development.

The cabinet will be incorporated with a tinted glass viewing panel on the door. For a quick screening or inspection of the specimen within the cabinet, the curator just knock on the door to clear up the glass and illuminate the inside of the cabinet. If fungal infestation is found during inspection, the UV radiation tube lights inside the cabinet will be switch on to inactivate the fungi.

This study is aimed to innovate a holistic solution in combating fungal infection on insect specimens by building a smart view and antifungal entomology collection storage using UV radiation tube lights (figure 1). The cabinet will be incorporated with a tinted glass viewing panel on the door. For a quick screening or inspection of the specimen within the cabinet, the curator just knock on the door to clear up the glass and illuminate the inside of the cabinet. If fungal infestation is found during inspection, the UV radiation tube lights inside the cabinet will be switch on to inactivate the fungi.