

Winnifred¹ Duk, Bosley Boting² & Matthew Landu³

Introduction

- Mushrooms secrete secondary metabolites for their defense and survival (Calvo & Cary, 2015).
- These compounds are useful for pharmaceutical applications.
- Genes for SM are usually silenced thus limits production of secondary metabolite compounds (Bode et al., 2002).
- It is hypothesized that mycelia of *Coprinus lagopus* treated with either Ultra Violet (UV) blue light or in co-culture with bacteria will have enhanced production of these compounds.

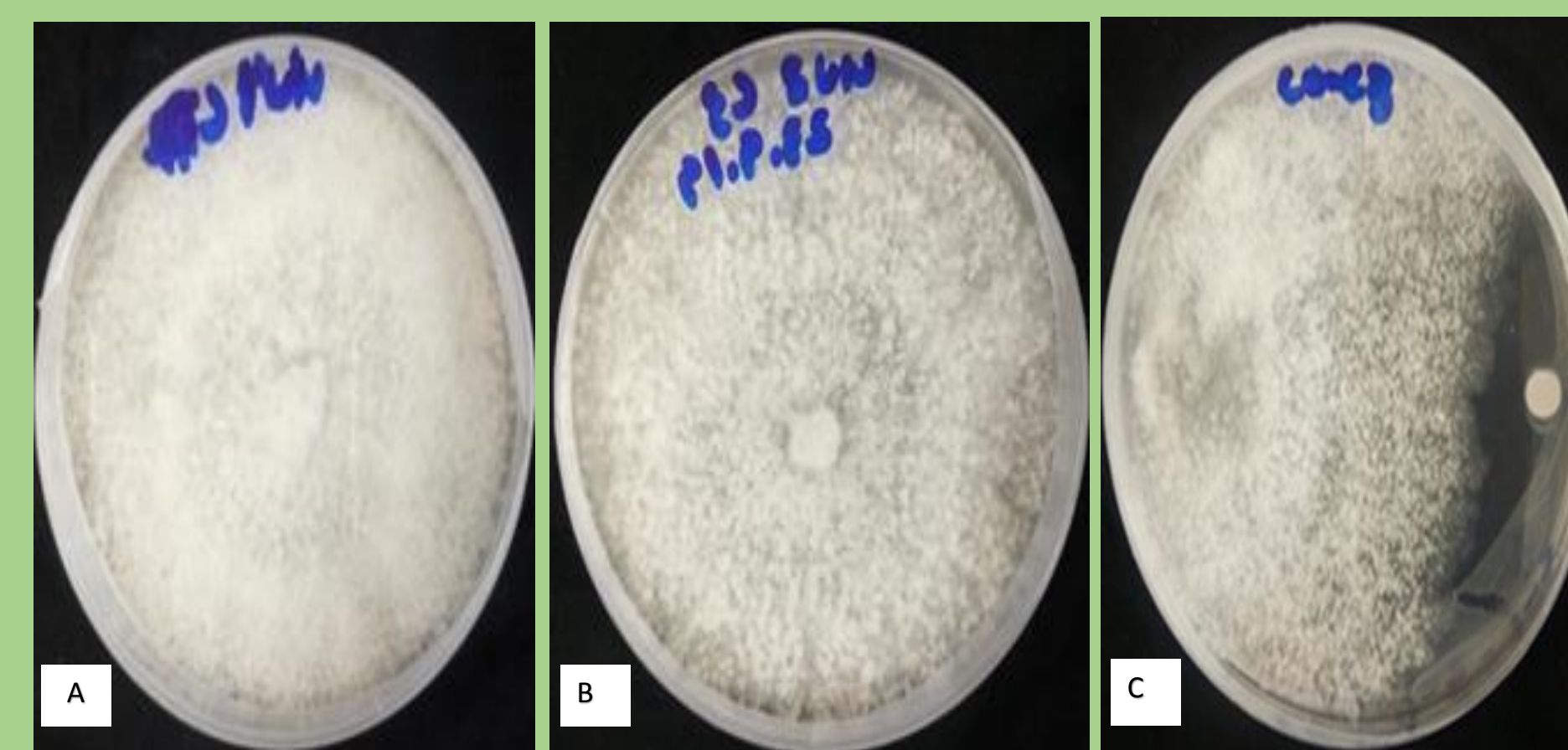
Methodology

- *Coprinus lagopus* (*C.lagopus*) mycelia were cultured on solid Potato Dextrose Agar for all the treatments.
- Samples were treated with either UV blue light exposure, co-cultured with *E. coli*, or left untreated.

- Compound extraction was done with either ethyl acetate or methanol.
- Isolation of putative secondary metabolite compound was done using reverse-phase High Performance Liquid Chromatography (HPLC).

Result

Mycelia growth morphology

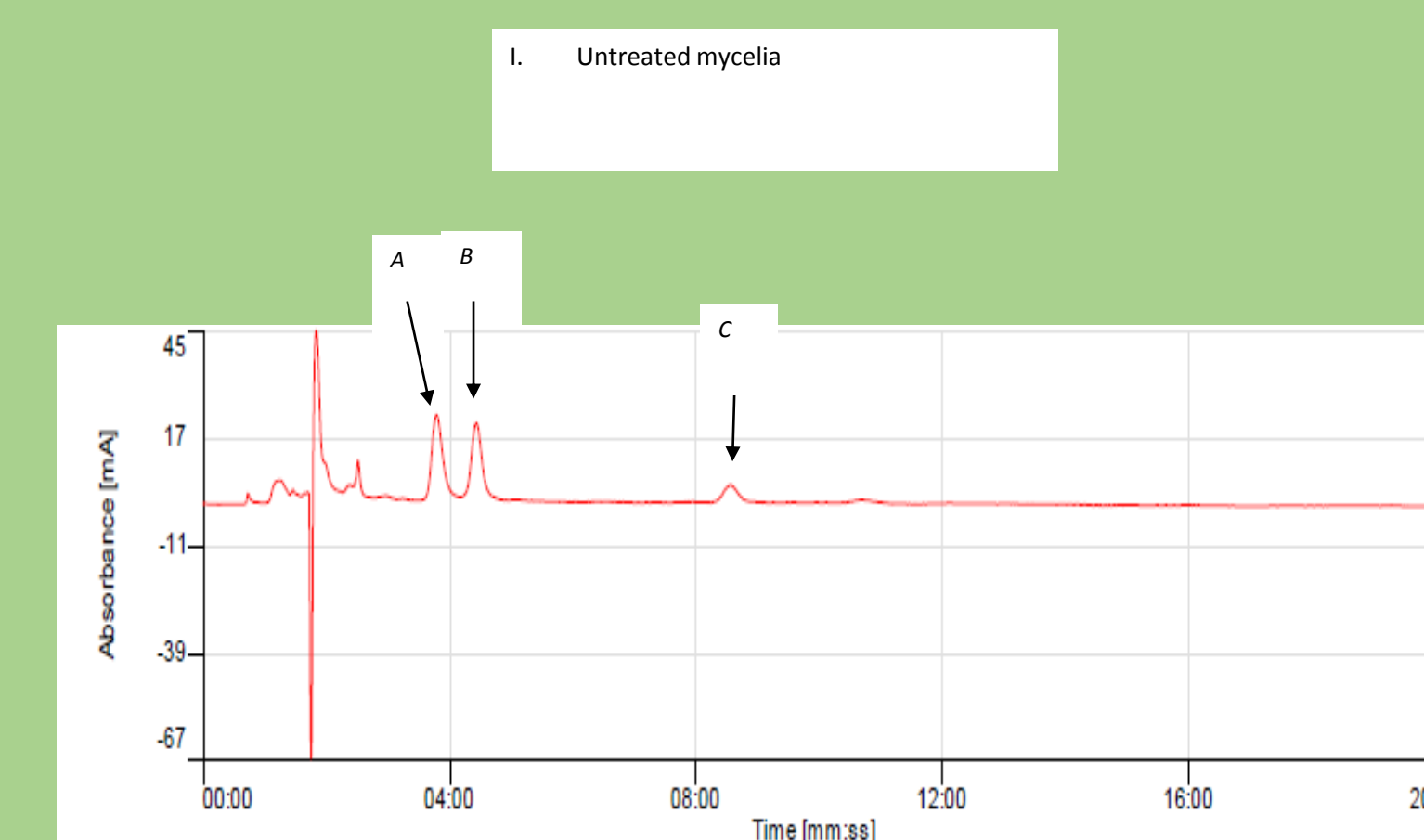
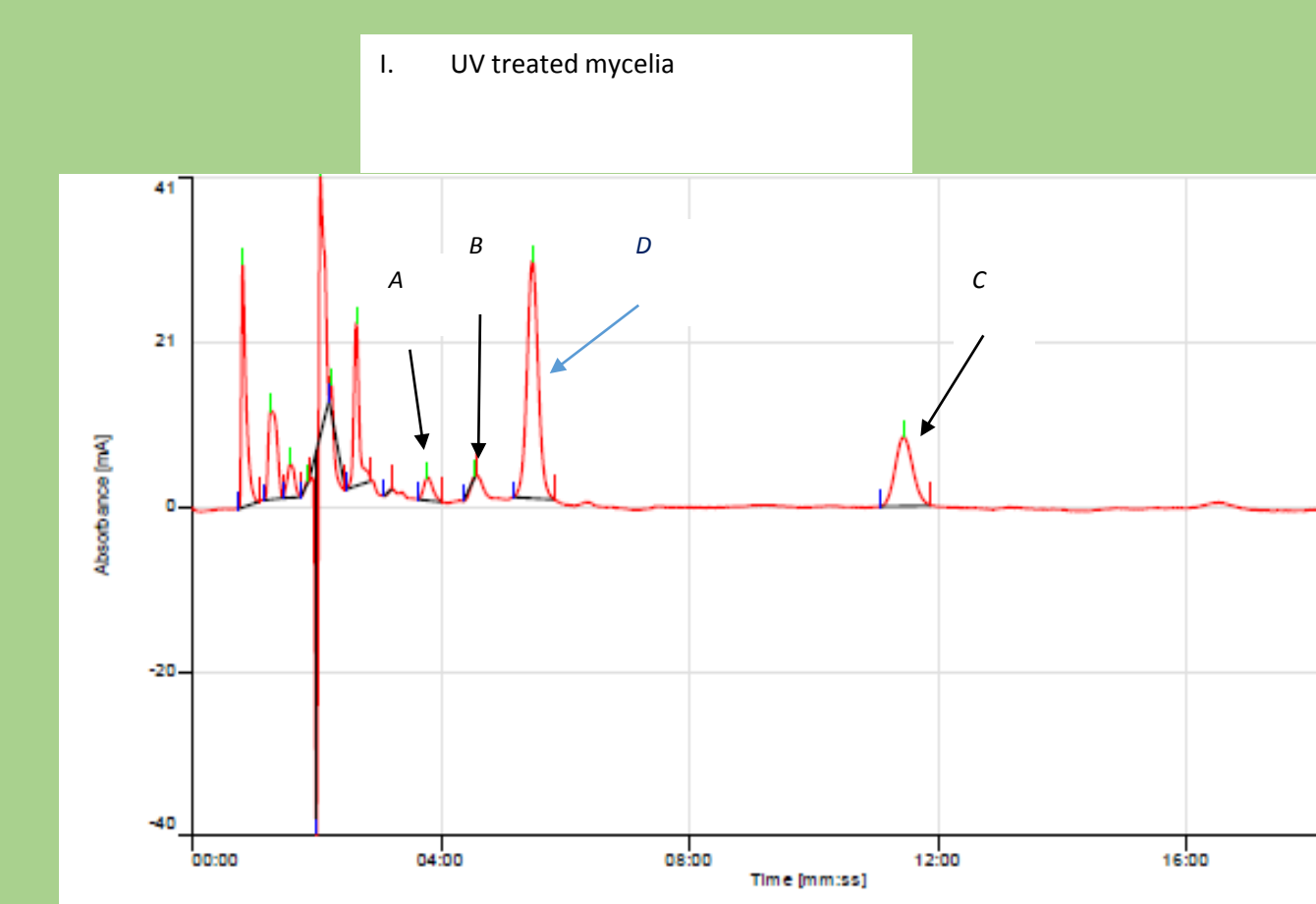
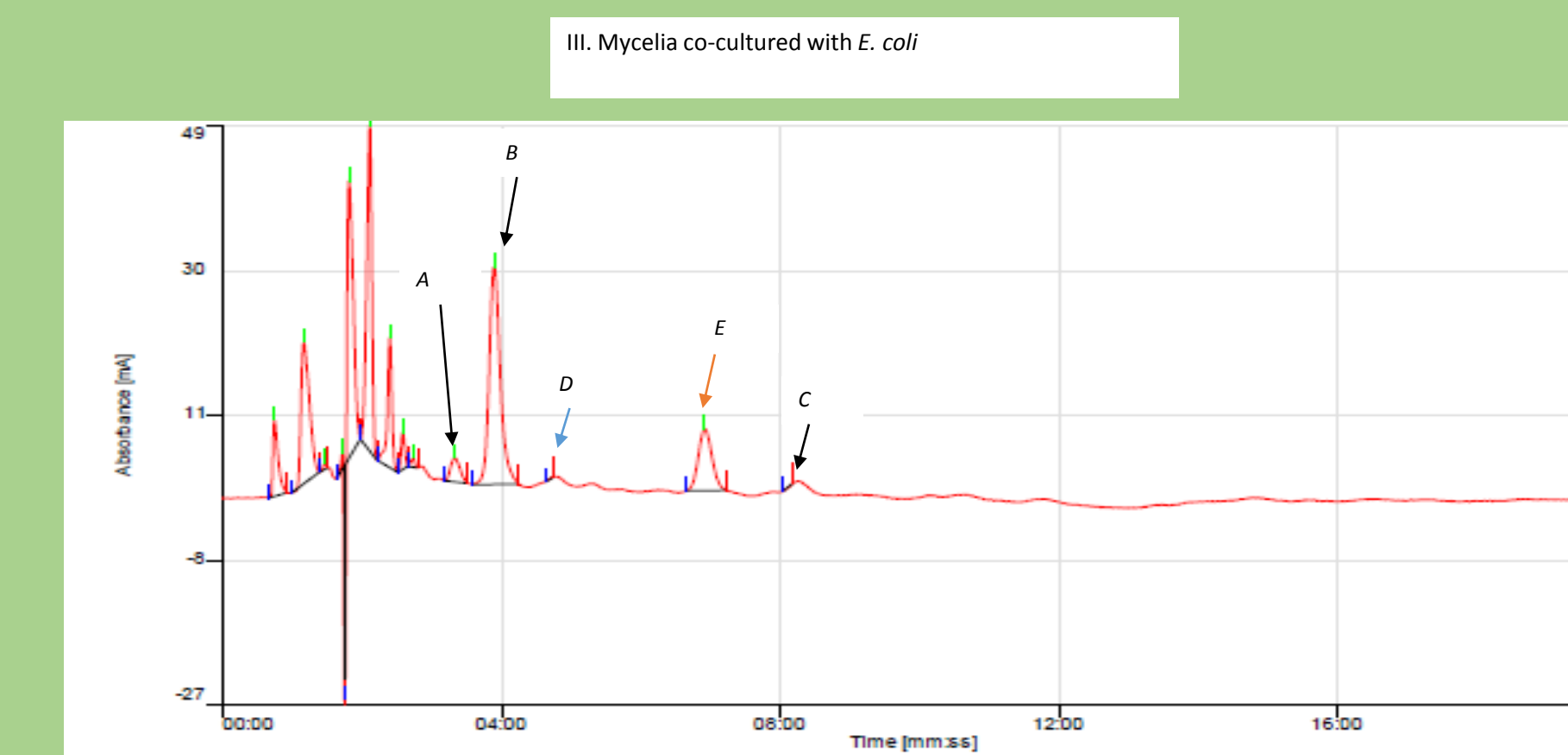


A. White, dense, and cottony texture of mycelia colony of untreated experiment

B. White, dense mycelia growth for UV treated mycelia. Formation of brown coloration were observed.

C. Slow growth performance was observed for co-culture experiment. Distance inhibition of 4-5mm was observed between *C.lagopus* mycelium and *E.coli*.

Chromatogram of putative SM in mycelia of *C.lagopus*



I. Three putative compounds were isolated for untreated extract.

II. Four putative compounds were isolated for UV treated mycelia. Additional peak labelled compound D appeared as new peak.

III. Five putative compounds were isolated for mycelia. Additional peak labeled compound D and E appeared as new peak. a co-cultured with *E.coli*.

Discussion

- Conventional methods were used as strategies to activate production of SM.

- Appearance of additional were observed in the treated samples.
- Structure elucidation and characterization of these compounds to determine its production and abundance is the next focus of this research.

Reference

1. Bode, H. B., Bethe, B., Hofs, R. and Zeeck, A. (2002). Big effects from small changes: Possible ways to explore nature's chemical diversity. Chembio.
2. Calvo, A. M. and Cary, J. W. (2015). Association of fungal secondary metabolism and sclerotial biology. Front. Microbiol.
3. Cichewicz, R.H. (2010). Epigenome manipulation as a pathway to new natural product scaffolds and their congeners. Nat Prod Rep. 27(1).11-22