

N ~ New

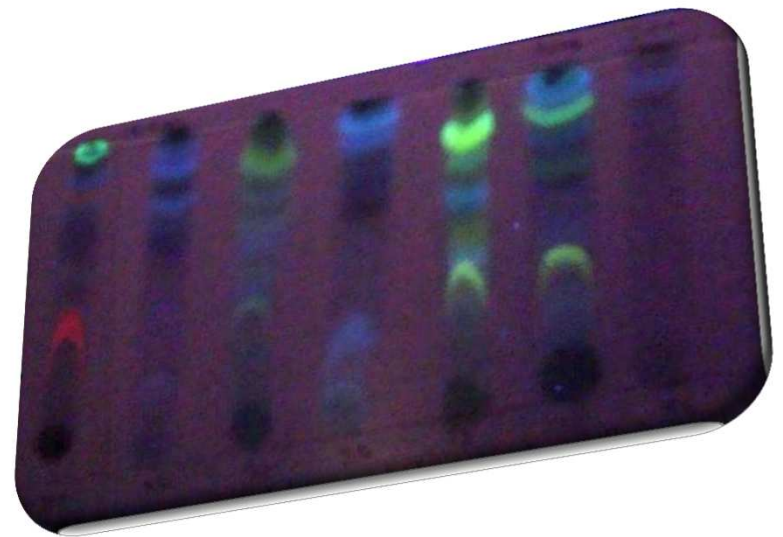
U ~ Undiscovered

S ~ Species

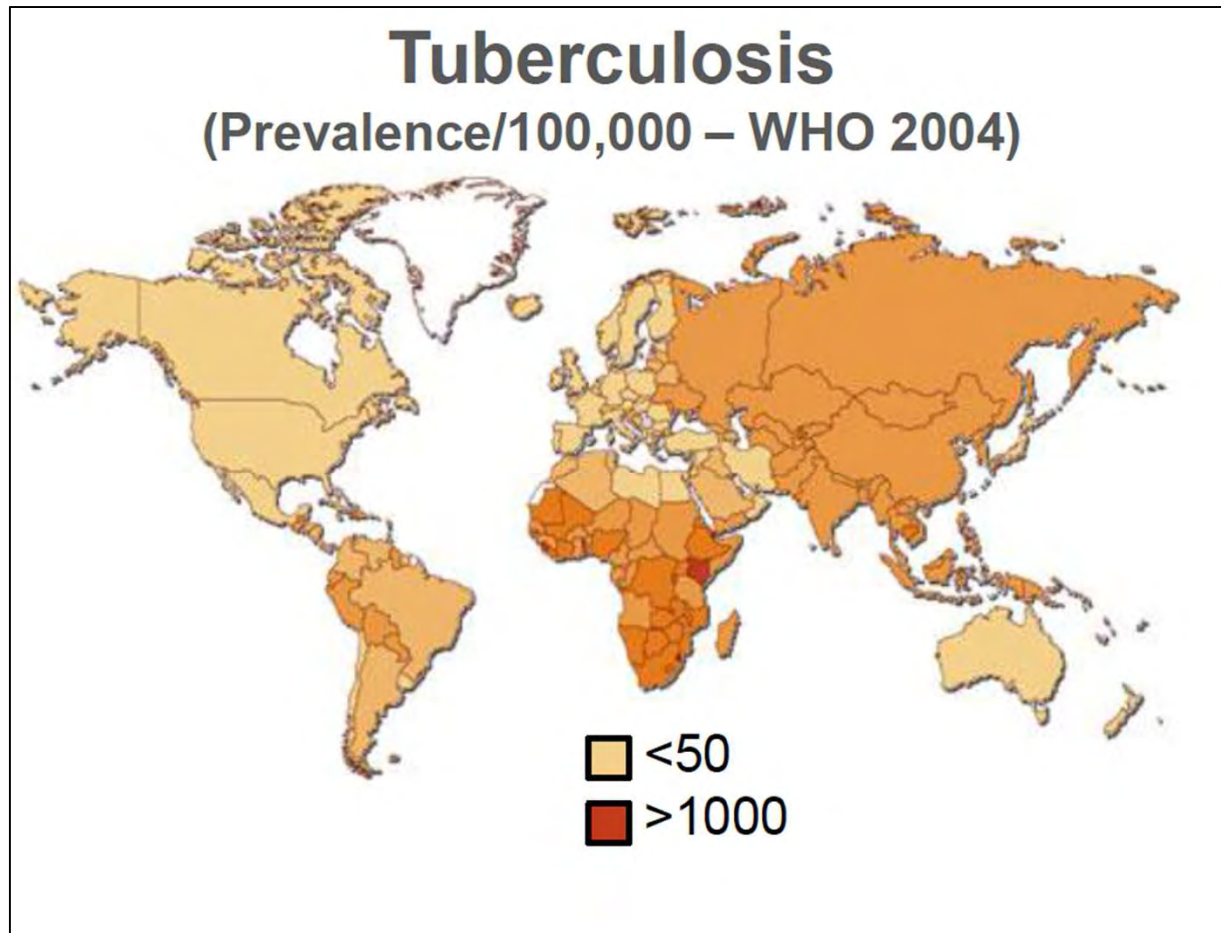
Analysis of Anti-Infective Compounds Produced by Marine Endophytic Fungi Found in Ghana

Patrick Kobina Arthur , Ph.D.

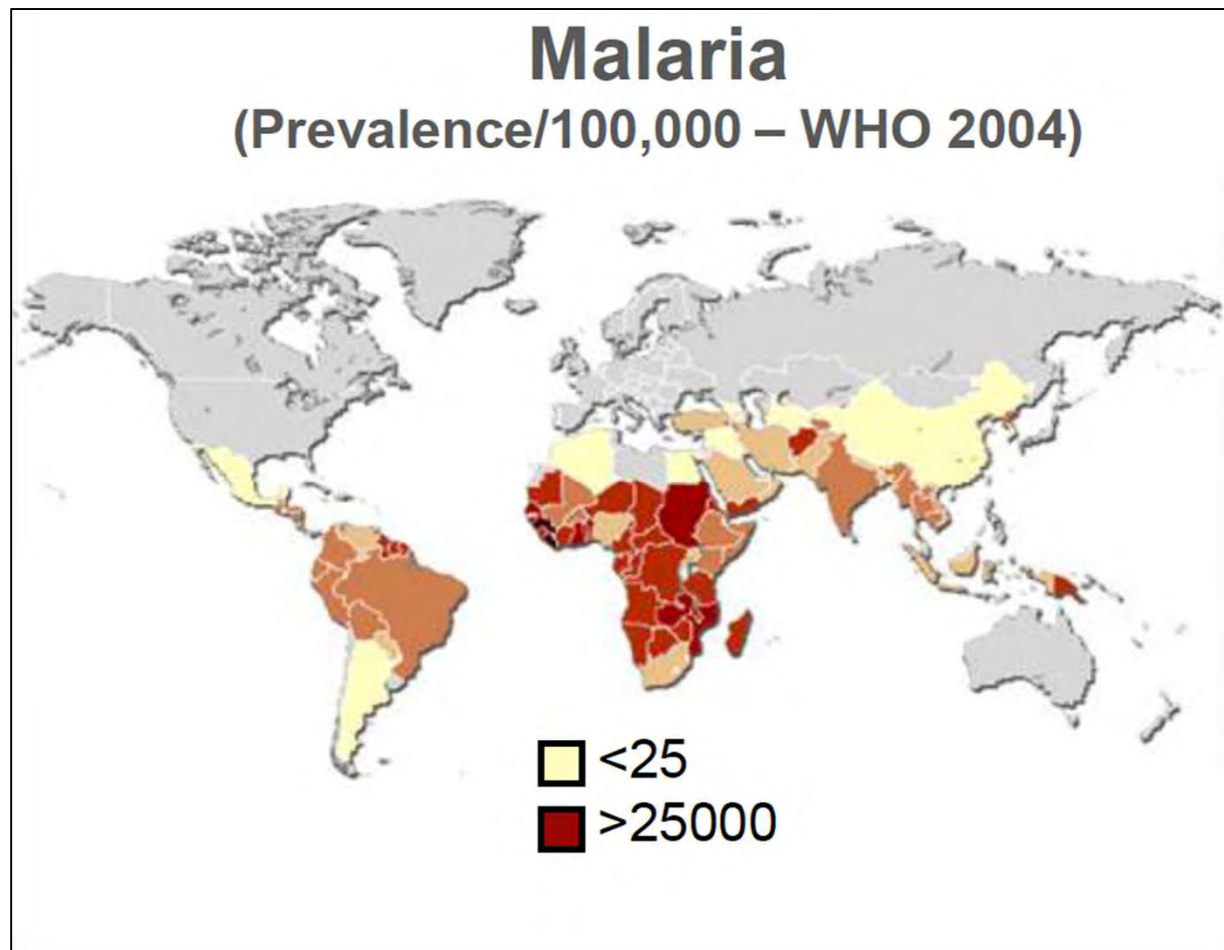
*Department of Biochemistry,
Cell and Molecular Biology
University of Ghana.*



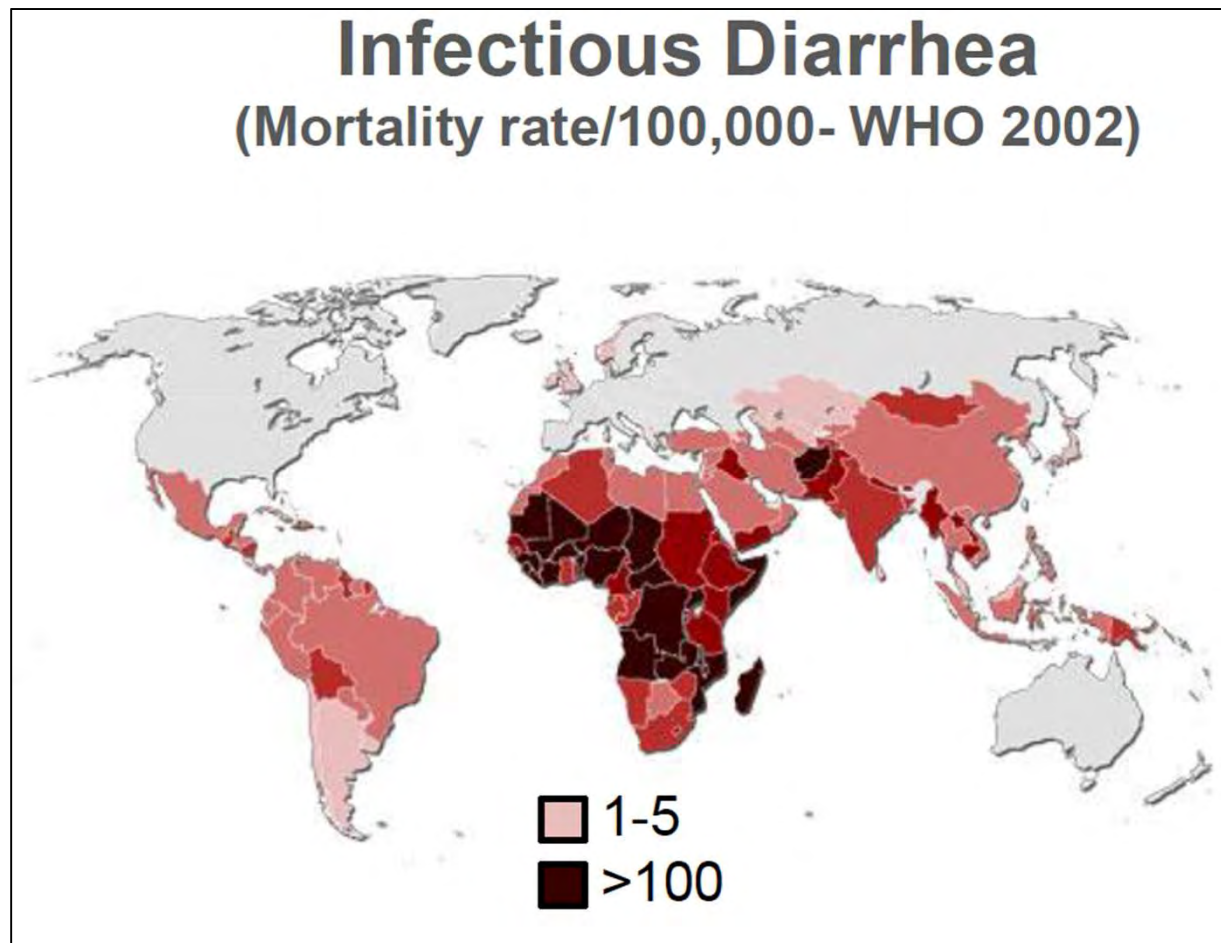
The Burden of Infectious Diseases in Africa



The Burden of Infectious Diseases in Africa

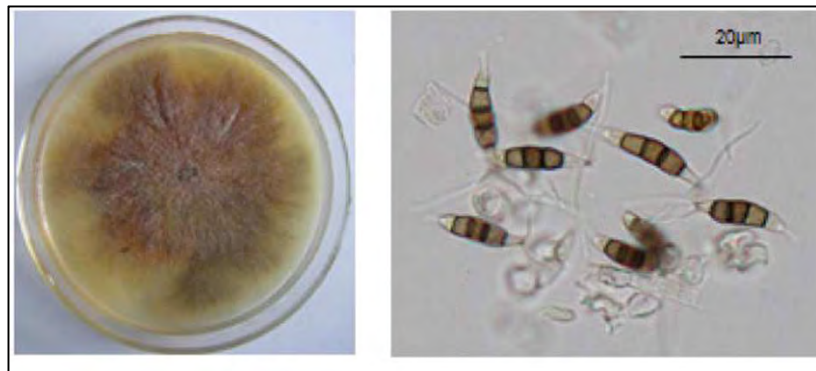


The Burden of Infectious Diseases in Africa

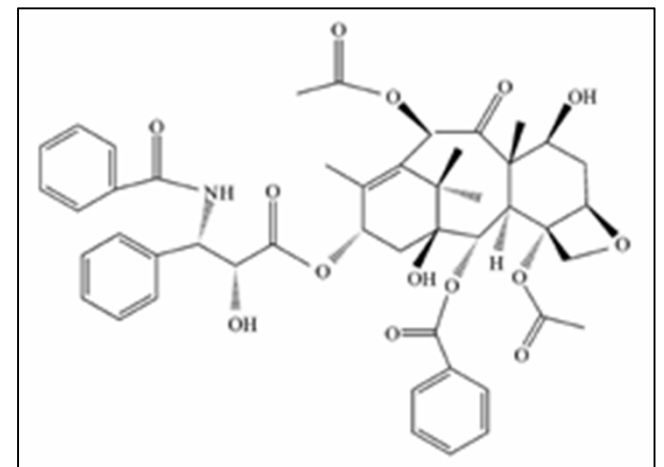
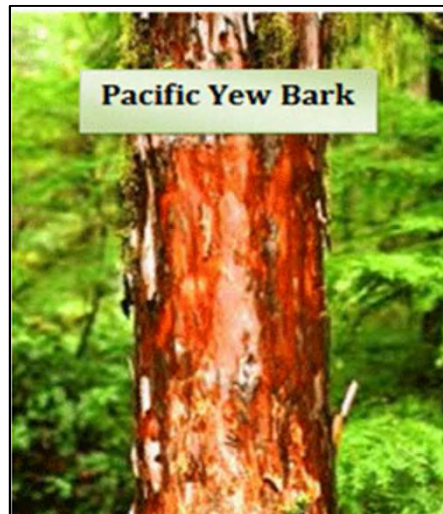


Taxol is Produced by Endophytic Fungi

Taxomyces andreanae



Taxus brevifolia



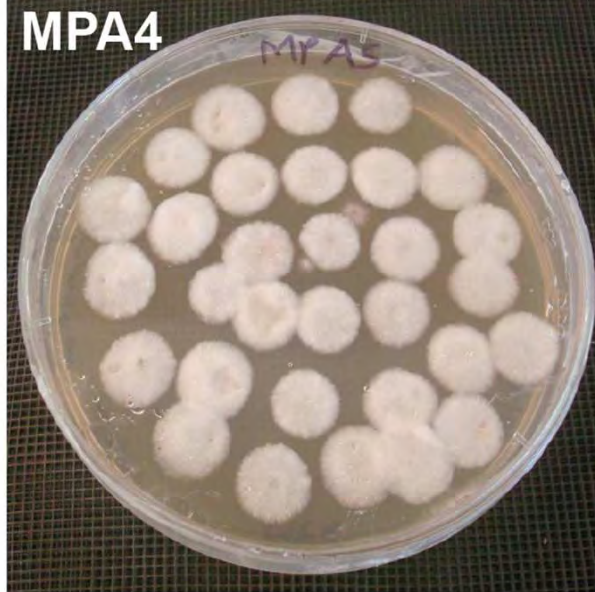
Identifying MEF on the level of Colony Morphology

Examples of Our Marine Endophytic Fungal Isolates

MPA1



MPA4



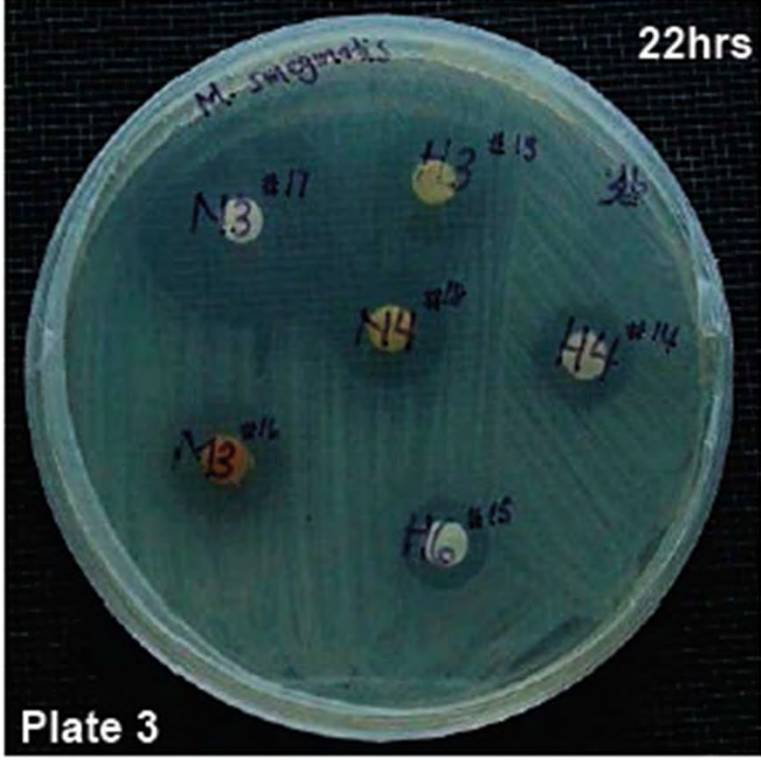
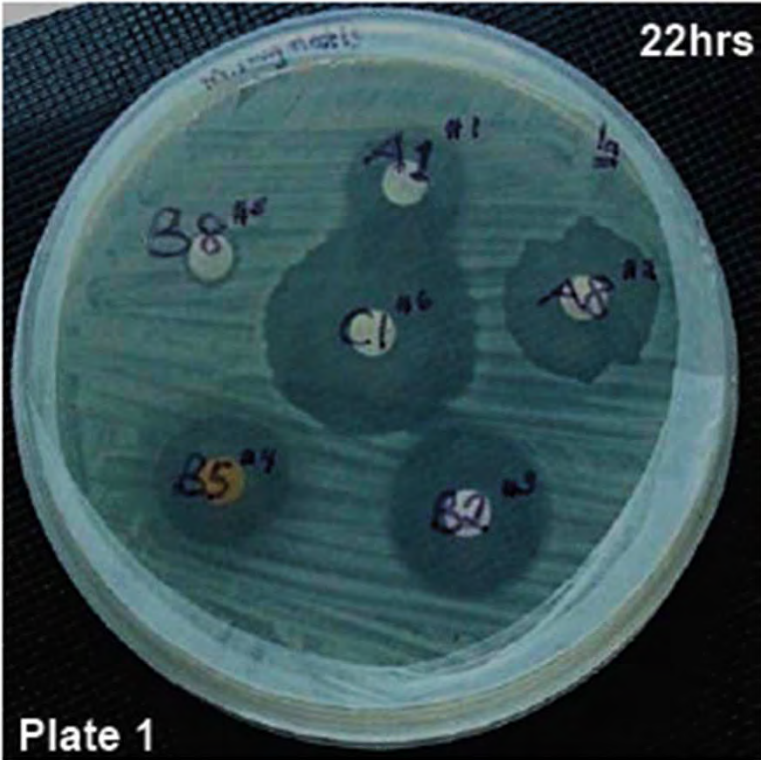
MPB6



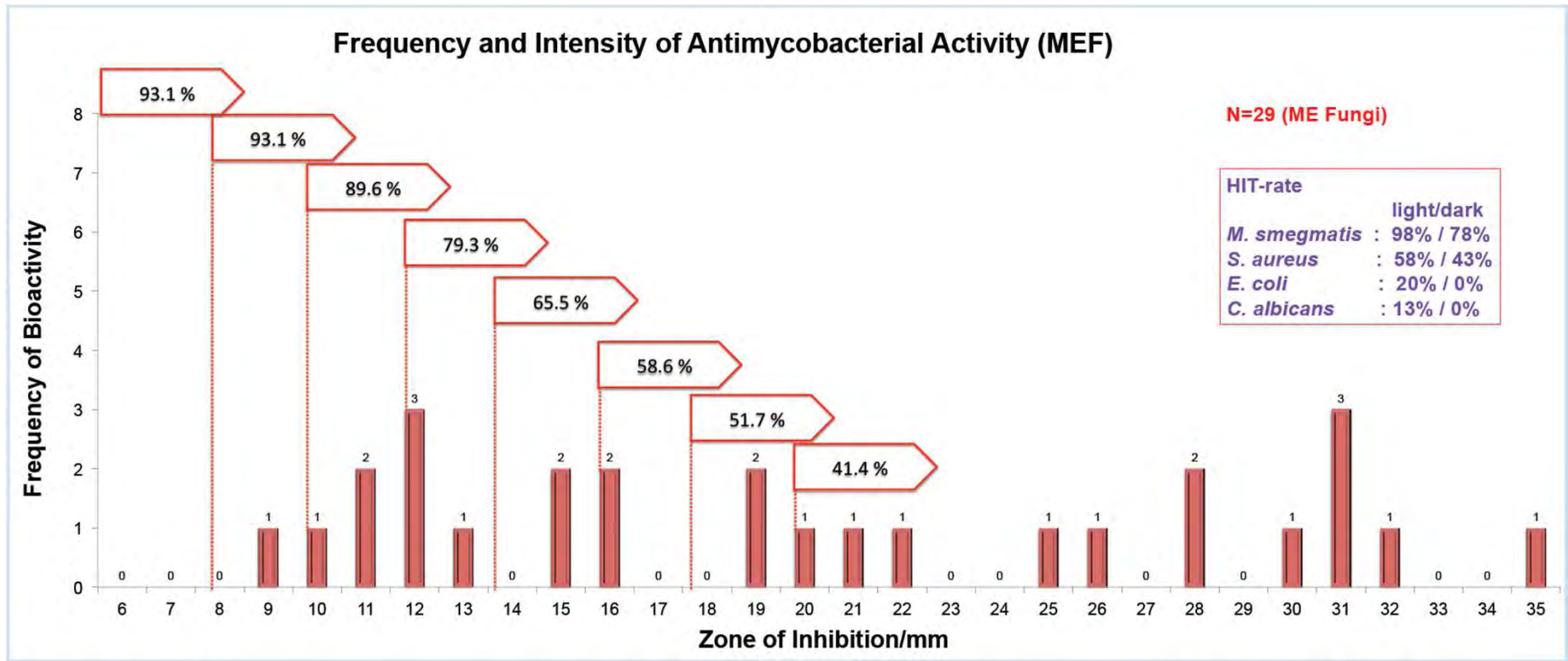
Model Cells: Anti-Microbial Activities Screening

<i>Mycobacterium smegmatis</i>	: Mycobacteria
<i>Staphylococcus aureus</i>	: Gram + Bacteria
<i>Escherichia coli</i>	: Gram - Bacteria
<i>Candida albicans</i>	: Fungi

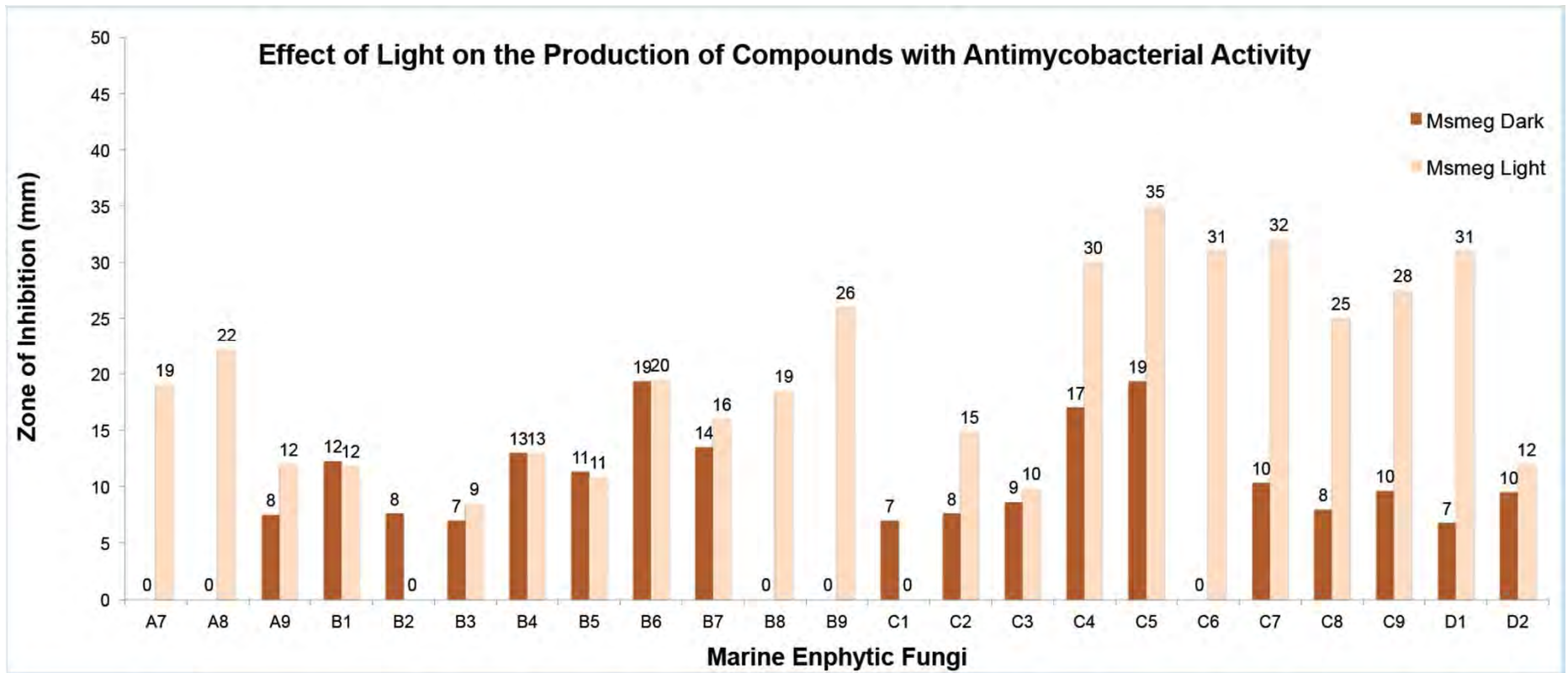
Method: Screen for Anti-Microbial Activities



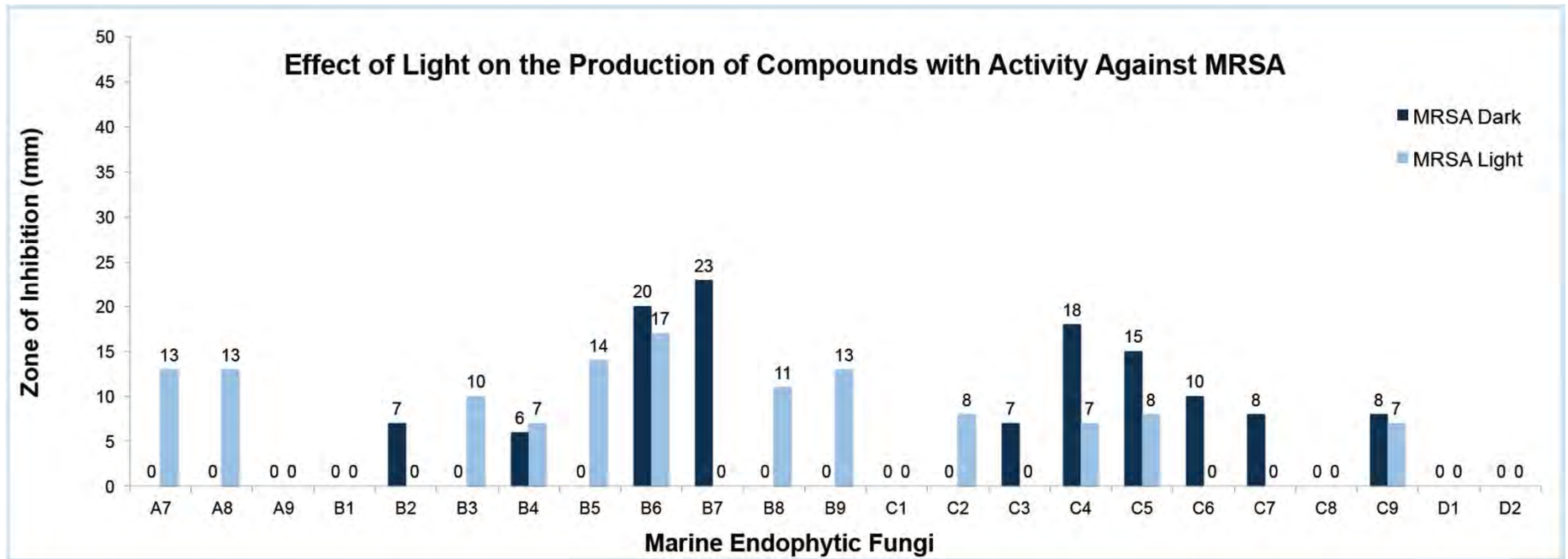
Many Antimycobacterial Activities Above Threshold Levels



Influence of Light on Bioactive Compound Production 1

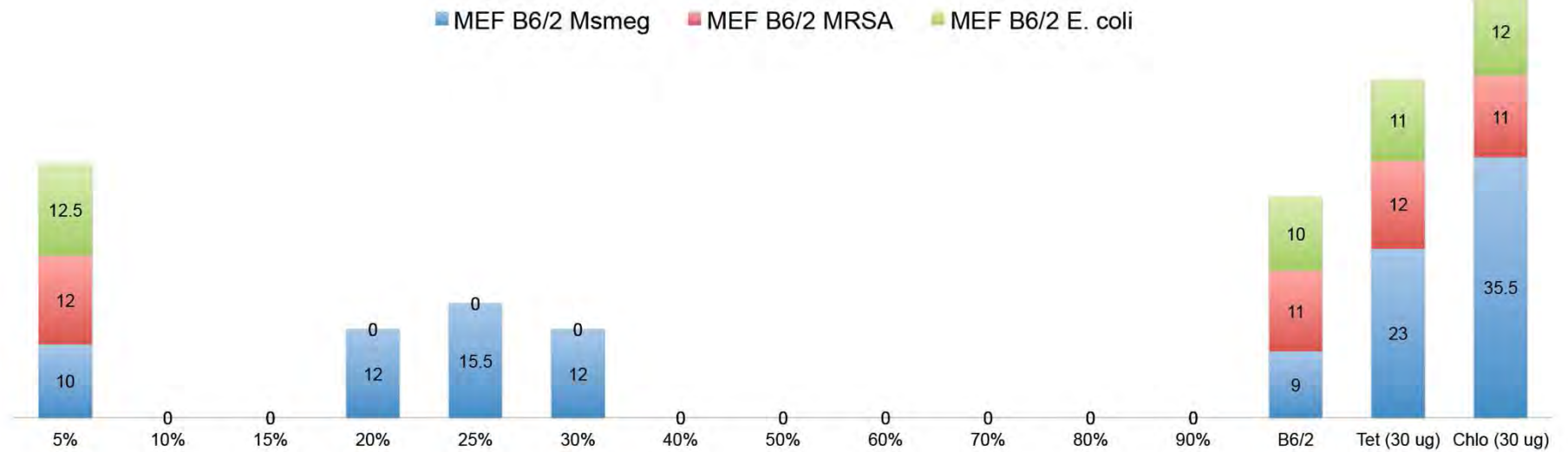


Influence of Light on Bioactive Compound Production 2



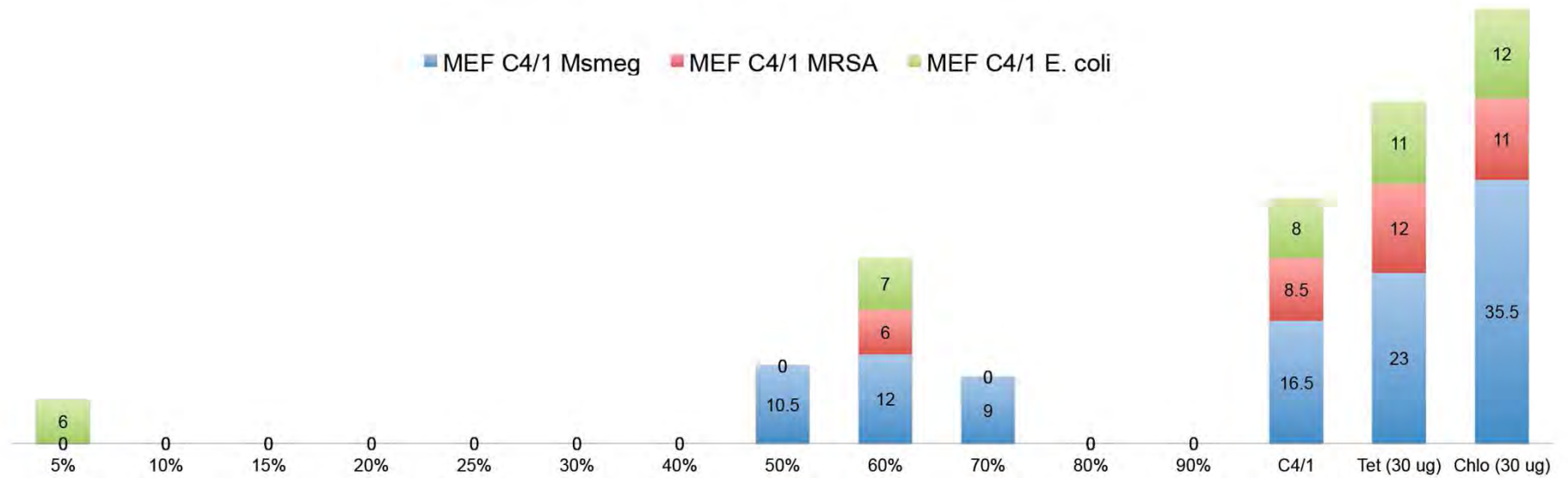
Antimicrobial Activities in C-18 Fractions of MEF – B6

Bioactivity Profile of C-18 Fractions of MEF B6#2

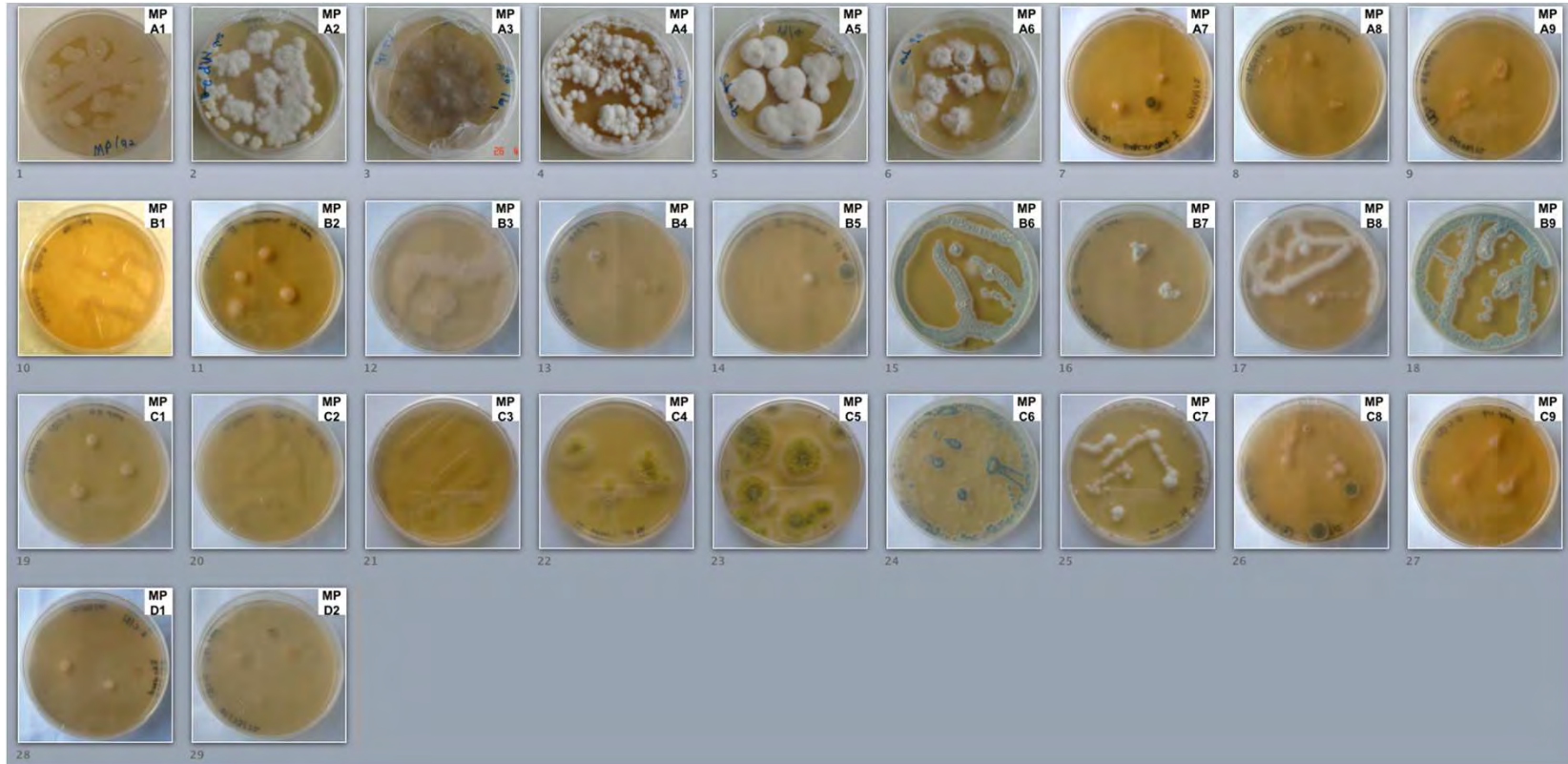


Antimicrobial Activities in C-18 Fractions of MEF – C4

Bioactivity Profile of C-18 Fractions of MEF C4#1



Marine Endophytic Fungi Collection #1



Conclusions

1. Antimycobacterial activity is the most abundant type of bioactivity detected in MEF
2. The production mostly antimycobacterial activities in some MEF is influence by light
3. C-18 fractions with only antimycobacterial activities

Future Perspectives

1. Development rapid quantitative antimycobacterial assay using *Mb* BCG
2. Large scale culturing and product isolation
3. Proteomic analysis of the biological effects of new compounds on Mycobacterial cells
4. Isolate more fungi other sources e.g. soil fungi, endophytic fungi of terrestrial plants

N ~ Neglected

U ~ Underutilized

S ~ Species

Endophytic Fungi and other Bio-resources



Acknowledgements

Project Team Members

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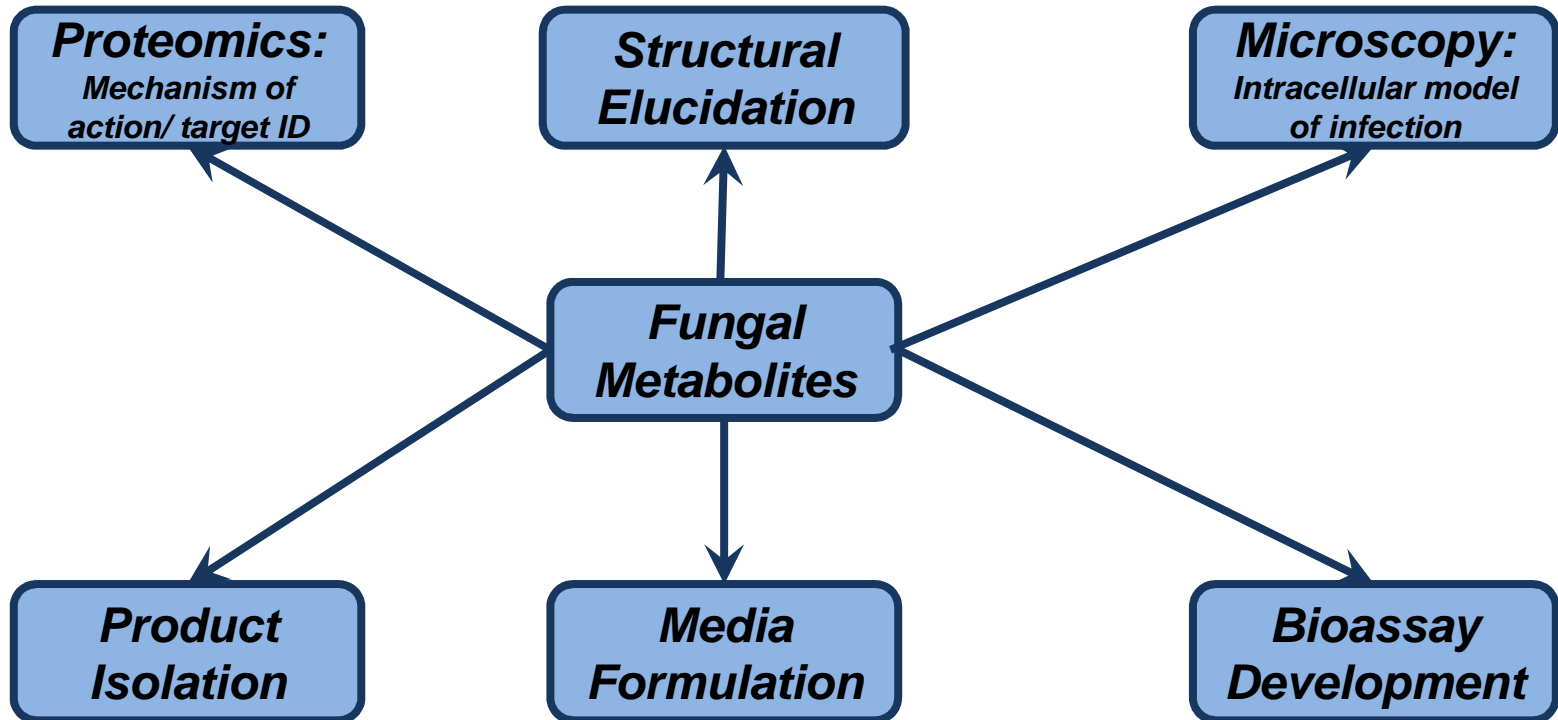
Prof. Herman Sintim

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Research Plan



Research Plan ~ Upgraded

