**ABSTRACT**

Eumycetoma is a fungal form of a disease known as mycetoma, which is a disease that causes chronic infection to the skin and subcutaneous tissue. This disease is endemic to rural areas between latitudes 15°S and 30°N. Current antifungal medications are 25-35% effective, are too pricey, and have noticeable side effects. This unfortunately leads some in the poorest communities around the world to amputate limbs affected by the infection, which can leave them unable to work. If amputation or current treatments are unsuccessful, death is likely to occur. So, in order to solve the treatment gap, we partnered with DNDi to formulate possible drug synthesis that can effectively combat the disease, be affordable, and have very limited side effects.

**METHODS**

Due to the Corona Virus, this project involved project planning and writing a proposal based on studies conducted prior to project date.

**PROPOSED SYNTHESIS PATHWAY**

1. **GRIGNARD**
   
   2-Bromopyridine + Benzaldehydes

2. **CHLORINE SUB.**
   
   Grignard product + Thionyl Chloride

3. **TRIAZOLE SUB.**
   
   Chlorine product + 1,2,4-Triazole

**PURIFICATION & TESTING**

TLC and H-NMR after each step. Flashmaster II chromatography with ethyl acetate in dichloromethane

**TARGET MOLECULES**

**REFERENCES**


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**INTELLECTUAL MERITS**

Again, the basis of our research is to synthesize a drug that is more effective and cheaper than current treatments. Based on previous research, fenarimol analogues are effective against the main fungal agent that causes eumycetomas, and triazoles have also been found to be effective against other fungal agents.

**BROADER IMPACTS**

The impact on low-income regions of Eumycetomas is high. Those infected carry nasty lesions that lead many affected by this disease to be outcast from their families and society. Limbs affected are often amputated, and when this can not occur, death is prominent.

**FUTURE DIRECTIONS**

Synthesize and purify target molecules and ship to DNDi for further testing.