Fungicidal Properties of Pseudomonas aeruginosa

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Nosocomial infections are a potentially lethal and prevalent hazard in the hospital setting. There are over 99,000 associated deaths in American hospitals annually with 1 in 25 hospitalized patients contracting a healthcare-associated infection daily (Healthcare-Acquired Infections: “Who’s at Risk?”, n.d., para. 2). Some HAIs (healthcare-associated infections) even demonstrate a level of resistance to some antimicrobial drugs. It is the susceptibility of hospitalized patients and immunodeficient persons of contracting a nosocomial infection that inspired me to find a way to inhibit the spread of HAIs in the medical workplace. I decided to test if properties of P. aeruginosa (Pseudomonas aeruginosa) could be used as possible inhibitors of Malassezia fungi (based on a similar experiment done by other researchers with P. aeruginosa and Candida fungi)(Kolter, 2002). After inoculating test samples of P. aeruginosa into Malassezia spp. yeast, consistent signs of fungicidal activity could be seen in most plates tested. The P. aeruginosa averaged a zone of inhibition of 3.55 mm x 3.41 mm on the Colorex yeast plates and 17.5 mm x 19.2 mm on the Mueller Hinton Agar plates. Although the averages of the area of inhibition created by P. aeruginosa was not as large as those made by the positive controls (Miconazole: 44 mm x 45.5 mm for the Colorex yeast plates and 57.5 mm x 55 mm for the Mueller Hinton Agar plates, Chlorhexidine: 32.5 mm x 30 mm for the yeast plates and 23.5 mm x 26 mm for the Mueller Hinton Agar plates), the P. aeruginosa inoculated samples still showed a relatively promising result. Although the results supported my hypothesis, the actual mechanisms behind the fungicidal properties remain unknown. Further experimentation will be needed to isolate such properties.

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