

**THE ROLE OF LACCASE ENZYMES OF  
*Penicillium marneffe* ON CYTOKINE  
PRODUCTION IN MACROPHAGE**

**JUTIKUL KAEWMALAKUL**

**MASTER OF SCIENCE**

**IN MICROBIOLOGY**

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**GRADUATE SCHOOL  
CHIANG MAI UNIVERSITY  
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**JUTIKUL KAEWMALAKUL**

**A THESIS SUBMITTED TO CHIANG MAI UNIVERSITY IN PARTIAL  
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF SCIENCE  
IN MICROBIOLOGY**

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THIS THESIS HAS BEEN APPROVED TO BE A PARTIAL FULFILLMENT OF  
THE REQUIREMENTS FOR THE DEGREE OF  
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