



**ANGIOGENIC EFFECT OF *Broussonettia luzonica* (HIMBABAO) AND
Caesalpinia pulcherrima(CABALLERO) CRUDEFLOWER
EXTRACTSON THE CHORIOALLANTOIC
MEMBRANE (CAM)OF A 10-DAY
OLD CHICK EMBRYO**

**An Undergraduate Thesis Presented to
The Faculty of Biological Sciences Department
College of Science and Computer Studies
De La Salle University–Dasmariñas
Dasmariñas, Cavite**

In Partial Fulfillment of the Requirements

For the Degree of Bachelor of Science Major in Human Biology

BRYAN JAMES G. CORTEZ

ANDREA CHELINE MONIQUE H. JARIN

March 2014



ABSTRACT

Angiogenesis is an important natural process in the body used for healing and reproduction. The body controls angiogenesis by producing a precise balance of growth and inhibitory factors in healthy tissues. The study determined the effects of *Broussonettia luzonica* (himbabao) and *Caesalpinia pulcherrima* (caballero) to the chorioallantoic membrane (CAM) of a 10-day old chick embryo. Three treatments were used: T1 (100 ppm), T2 (200 ppm), T3 (300 ppm) and were administered on the CAM of the chick embryo. After 48 hours, collaterals were counted. All treatments exhibited angiogenic effects to the chick embryo, lowering the number of blood vessels formed on the CAM compared to the control. Different concentrations on each plant extract showed significant difference and were further tested for comparison of other treatments. The combination of T9 (300 ppm) himbabao and caballero was determined to be the most effective inhibitor of all the plant samples as it yielded the lowest average of collaterals compared to all the concentrations.



TABLE OF CONTENTS

Title Page	1
Approval Sheet	2
Acknowledgement	3
Abstract	4
Table of Contents	5
CHAPTER 1: INTRODUCTION	
1.1 Background of the Study	8
1.2 Conceptual Framework	10
1.3 Statement of the Problem	11
1.4 Hypotheses	11
1.5 Scope and Limitation	12
1.6 Significance of the Study	13
1.7 Definition of Terms	14
CHAPTER 2: REVIEW OF RELATED LITERATURE	
2.1 Conceptual Literature	15
2.2 Related Studies	21
CHAPTER 3: METHODOLOGY	
3.2 Research Design	25



3.3 Research Setting	25
3.3 Research Procedure	26
3.4 Data Gathering Procedure	28
3.5 Statistical Analysis	29
CHAPTER 4: RESULTS AND DISCUSSION	
4.1 Results	30
4.2 Discussion	37
CHAPTER 5: CONCLUSION AND RECOMMENDATIONS	
5.1 Conclusion	41
5.2 Recommendations	42
Cited References	43
Appendices	
A. Standard Procedure	53
B. Concentration of Flower Extracts	55
C. Raw Data	56
D. Statistical Analysis	59
E. Plant Samples	64
F. Photodocumentation	67
Curriculum Vitae	69



LIST OF TABLES

4.1 Average Number of Branch Points Formed from Treatment of Himbabao and Caballero

