

**ANTI-ANGIOGENIC POTENTIAL OF KUNDOL (*Benincasa hispida*)
SEEDS USING MALLARD DUCK CHORIOALLANTOIC
MEMBRANE (CAM) ASSAY**

THESIS

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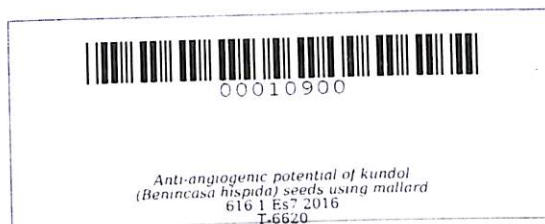
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**ANTI-ANGIOGENIC POTENTIAL OF KUNDOL (*Benincasa hispida*) SEEDS
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MEMBRANE (CAM) ASSAY**

Undergraduate Thesis
Submitted to the Faculty of the
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ABSTRACT

ESSUMAN, PIUS B., MAGANTE, EJ T., AND POBLETE, FLORELYN T. Anti-angiogenic Potential of Kundol (*Benincasa hispida*) Seeds Using Mallard Duck Chorioallantoic Membrane Assay. Undergraduate Thesis. Bachelor of Science in Medical Technology, Cavite State University, Indang, Cavite, November 2016. Adviser: Ms. Isolde M. Quitan,RMT.

The study, entitled “**Anti-angiogenic Potential of Kundol (*Benincasa hispida*) Seeds Using Mallard Duck Chorioallantoic Membrane (CAM) Assay,**” was conducted at the Department of Medical Technology Laboratory, College of Nursing from June 2016 to September 2016. The study generally aimed to determine the anti-angiogenic potential of Kundol (*Benincasa hispida*) seeds using Mallard duck chorioallantoic membrane (CAM) assay. Specifically, this study aimed to: determine the constituents of Kundol (*Benincasa hispida*) seeds using phytochemical analysis; determine the significant difference between growth of the blood vessels of different concentrations of the Kundol (*Benincasa hispida*) seed extracts administered into the eggs; and determine the significant difference in growth of blood vessels between treatments and control group.

Kundol (*Benincasa hispida*) fruits were gathered from Guyam Malaki, Indang, Cavite. Seeds of the Kundol (*Benincasa hispida*) fruit were collected, air dried, and pulverized. Powdered seeds were macerated and soaked in ethanol and in methanol for two days. Different concentrations of seed extracts from soxhlet heating mantle were made (25%, 50%, 75%, and 100%).

Anti-angiogenic activity of Kundol (*Benincasa hispida*) seeds was evaluated through chorioallantoic membrane (CAM) assay using one-way analysis of variance (ANOVA) and Tukey method at 5 percent probability level.

Phytochemical analysis revealed that Kundol (*Benincasa hispida*) seeds contained moderate alkaloids and traces of triterpenes, saponins, and glycosides. High amount of blood vessel inhibition was exhibited on eggs applied with 50 percent, 75 percent and 100 percent ethanolic seed extracts. Similar to the anti-angiogenic activity of retinoic acid, ethanolic extract of Kundol (*Benincasa hispida*) seeds having 100 percent concentration showed the highest anti-angiogenic activity among the experimental group.

From the findings and conclusion of the study, the researchers would like to recommend a further study of the anti-angiogenic property of Kundol (*Benincasa hispida*) seeds, to determine the specific mechanism involved by which Kundol (*Benincasa hispida*) seed extracts inhibit vascularization, to compare the anti-angiogenic effect of Kundol (*Benincasa hispida*) seeds using different solvents, and to use rat aortic ring assay, matrigel plug assay, and corneal angiogenesis assay in testing its anti-angiogenic potential.

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INTRODUCTION

Angiogenesis is the formation of new blood vessels. This process involves the migration, growth, and differentiation of endothelial cells, which line the inside wall of blood vessels. The process of angiogenesis is controlled by chemical signals in the body by producing a precise balance of growth and inhibitory factors in healthy tissues. These signals can stimulate both the repair of damaged blood vessels and the formation of new blood vessels (National Cancer Institute, 2011).

Angiogenesis in this respect had critical role playing in the growth and spread of cancerous cells. A blood supply is necessary for tumors to grow beyond a few millimeters in size. The tumors can cause this blood supply to form by giving off chemical signals that stimulate angiogenesis. Tumors can also stimulate nearby normal cells to produce angiogenesis signaling molecules. The resulting new blood vessels