SCREENING OF THE ANTICOAGULANT PROPERTY OF COGON GRASS (*Imperata cylindrica*) EXTRACTS

Research Study

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Research Study
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ABSTRACT

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The study was conducted from December 2015 to March 2016 at the Department of Biological Sciences, College of Arts and Sciences, Cavite State University, Indang, Cavite, to screen the anticoagulant property of cogon grass (*Imperata cylindrica*) extracts. Specifically, it aimed to: determine the solvent that would yield the highest amount of cogon grass extract; determine the phytochemicals present in the cogon grass extracts; determine the anticoagulant activity of the cogon grass extracts with different polarities in terms of prothrombin time and the partial thromboplastin time; and identify the significant difference in the anticoagulant activity among the cogon grass with different polarities.

There were five treatments with three replications in the study. The five treatments used were as follow: T_0 (Negative control); T_1 (Positive control); T_2, (Ethanoic extract); T_3 (Dichloromethanoic extract); and T_4 (Hexanolic extract).

The collection and drying of cogon grass were conducted from December 2015 – January 2016. After drying, the leaves were pulverized into fine-like powder and extracts were evaluated. The produced extracts from different solvents were used as treatments. The phytochemical screening, and prothrombin and partial thromboplastin time tests were conducted from February to March 2016.

The amount of extracts produced from cogon grass was determined and based on the results, hexane (E_3) had the highest volume of yielded extract while ethanol (E_1) had

the least yielded extract. The phytochemicals present in each extract were also determined and it showed that ethanolic extracts had the presence of tannins, phenols, and terpenoids. Dichloromethane extracts showed the presence of tannins and flavonoids. Hexane extract showed the presence of tannins, phenols and alkaloids.

The prothrombin and partial thromboplastin time of the five treatments were determined. The PT test results showed that the treatment with the longest coagulation time was T_2 (Serum + Ethanolic extract), making it the best of all the treatments with cogon extracts. It gave a mean of 219.33 seconds. On the other hand, PTT test results showed that the treatment with the longest coagulation time was T_4 (Serum + Hexane extract) with a mean of 213.33 seconds. But T_1 (Positive control) still had the longest coagulation time in both PT and PTT test results and are comparable to the treatments with cogon extracts. Other treatments except T_0 (Positive control) also showed better results.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDIX TABLES

LIST OF APPENDIX FIGURES

LIST OF APPENDICES

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INTRODUCTION

Blood clotting is essential for wound healing. When a body tissue is injured and begins to bleed, it initiates a sequence of clotting factor activities, which is known as "coagulation cascade", leading to the formation of blood clot. However, blood clotting can be a factor to diseases or coagulation disorders like cerebro-vascular accident, more commonly known as stroke. Also, a blood clot or thrombus may cause cardiopulmonary attack (McGill, 2015).

Patients experiencing these diseases are recommended to take therapies and drugs that can prolong blood clotting. These drugs are called anticoagulants (NHS Choices, 2013).Anticoagulant medicines are used to reduce the ability of blood clotting (coagulation means clotting). These medicines are necessary especially when the blood clots too much, as blood clots can block blood vessels and lead to serious conditions such as atrial fibrillation, left ventricular thrombus, as well as for prevention or treatment of deep venous thrombosis and pulmonary embolism. A number of anticoagulants are available includingwarfarin, dabigatran, apixaban and ardeparin.Since heparin is a natural