



## **Analgesic Activity of *Salacia korthalsiana* Miq (Polipog)**

**Ma. Lourdes C. Alvarez<sup>1,2\*</sup>, Karina Milagros C. Lim<sup>1,2</sup> and Merle N. Tonog<sup>1,2</sup>**

<sup>1</sup>Department of Physical Sciences, College of Science, University of Eastern Philippines, University Town, Catarman, Northern Samar, 6400 Philippines.

<sup>2</sup>University Research and Development Services, University of Eastern Philippines, University Town, Catarman, Northern Samar, 6400 Philippines.

### **Authors' contributions**

*This work was carried out in collaboration among all authors. Authors KMCL and MNT designed and wrote the protocol of the study. Author MLCA managed the analyses and wrote the first draft of the manuscript. All authors read and approved the final manuscript.*

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### **ABSTRACT**

Pain has always been a cause of concern to humans. People often searched for remedy from plants because of the many documented side effects of commercial medicines. This study was conducted to determine the analgesic efficacy of the root decoction of *Salacia korthalsiana* Miq (Polipog) found in Mondragon Northern Samar. Acetic acid-induced writhing method was used to test the analgesic activity of polipog. Writhing test is a chemical method used to induce pain of peripheral origin by injection of irritant (ex. acetic acid). The manifestations of abdominal writhing in mice were described as an arching of back, extension of hind limbs and contraction of abdominal musculature. Analgesic activity of the test compound is inferred from decrease in the frequency of writhing. From the results obtained, polipog is comparable to the commercially available drugs in terms of analgesic efficacy.

**Keywords:** Polipog; analgesic; acetic acid-writhing method.

\*Corresponding author: E-mail: [lourdesalvarez40@gmail.com](mailto:lourdesalvarez40@gmail.com);

## 1. INTRODUCTION

Analgesics are drugs used to relieve pain. This drug relieves pain without inducing anesthesia. Pain is an unpleasant sensation that can be either acute or chronic and that is a consequence of complex neurochemical process in the peripheral and central nervous system. It is a highly unpleasant physical sensation caused by illness or injury, that is, pain is a symptom of something wrong. Pain can result from an injury, such as broken bone, a burn or sprains from infections, such a sinus infection or meningitis or from natural events, such as childbirth.

For many centuries, Filipino forefathers have been using medicinal herbs and plants for the treatment or prevention of diseases, disorders and for the promotion of good health. [1] stated that since ancient times plants have always been a reliable and important source of bioactive compounds used to treat several diseases. Herbal plants are used by many to relieve different illnesses including pain. In this work, the analgesic efficacy of polipog was analyzed.

## 2. METHODOLOGY

### 2.1 Plant Materials

An experimental method of research was used in this study. Three trials were made for each treatment. A commercially available drug was used as the positive control, while distilled water served as the negative control. The *Salacia korthalsiana* Miq (Polipog) roots were collected at Mondragon N. Samar as presented in Fig. 1. The samples were brought to the College of Science Laboratory for the preparation of extract.

### 2.2 Preparation of Plant Extract

To a 100 g of roots were washed and weighed and was sun dried. This was followed by the preparation of decoction using a 300 mL of distilled water by boiling for about 30-40 minutes (volume reduced to  $\frac{1}{2}$ ). After boiling, the sample was transferred to a clean beaker. The root extract was filtered using a whatman filter paper to separate the liquid extract from solid materials. The filtrate was placed in a clean bottle and set aside for the analgesic efficacy testing to albino mice.

For the preparation of the positive control, a 500 mg of commercially available drug was used. The tablet was pulverized and divided into three and used for three trials. A pulverized mefenamic acid is dissolved in 5mL distilled water.

For test animals, there were twelve (12) heads of albino mice, weighing 18-28 grams, used in the study. These animals were placed in cages and were accommodated in the laboratory room in few days and given enough food and water under normal environmental condition before these were subjected to experimentation.

### 2.3 Analgesic Activity

Acetic Acid-Induced Writhing Test was used following standard procedure used by [2] with few modifications on the amounts of treatments given. Mice were randomly divided into three treatments and were first administered with analgesic treatments (polipog decoction, mefenamic acid, water) of 0.20mL/20 grams body weight. After 1 hour 0.3mL of 5% acetic acid was injected intraperitoneally. Mice were placed in the observation cage and number of squirms was recorded for 20 minutes. To compute the % reduction of squirms or % protection against acetic acid, the formula was used.



Fig. 1. Picture of *Salacia korthalsiana* Miq (Polipog)

Percent reduction in squirms:

$$= \frac{\text{no. of squirms (negative control)} - \text{no. of squirms (treatment)}}{\text{no. of squirms (negative control)}} \times 100$$

**Table 1. Number of squirms using different treatments**

Treatment	No of grams of test animal	Dosage given (ml)	Number of squirms	% reduction
Polipog	20.67	0.21	0	100
Mefenamic Acid	20.33	0.20	0	100
Distilled Water	22.66	0.23	6	0

\*in 3 trials

### 3. RESULTS AND DISCUSSION

Writhing test is a chemical method used to induce pain of peripheral origin by injection of irritant like acetic acid. The manifestations of abdominal writhing in mice were described as an arching of back, extension of hind limbs and contraction of abdominal musculature. Analgesic activity of the plant extract is inferred from decrease in the frequency of writhing. The test animals were closely observed and video recorded individually after administration of the different tests in three (3) trials. Following the Acetic-acid induced writhing test procedure, the following data shown in Table 1 were observed.

From the results obtained, polipog and mefenamic acid has reduced the number of squirms in test animals that has been injected with 3% acetic acid. Results indicated that the analgesic activity of polipog is comparable to the commercially available drug. However, the negative sample which is water does not possess an analgesic activity as observed in the number of squirms from the test animals. Phytochemical screening of the secondary metabolites of polipog done in separate studies [3,4], gave positive result to steroids, that may also contribute to the analgesic activity observed from polipog in this study. The study of [5,6] also revealed analgesic activity of root and leaf decoctions of polipog similar to paracetamol.

### 4. CONCLUSION

In this study, it can be concluded that the polipog extract is comparable to the commercially available drug in terms of analgesic activity using the acetic acid writhing test method. It is further recommended to test the analgesic activity of the polipog extract using other methods such as the hot plate method [7] and tail flick test [8].

### CONSENT

It is not applicable.

### ETHICAL APPROVAL

It is not applicable.

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### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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