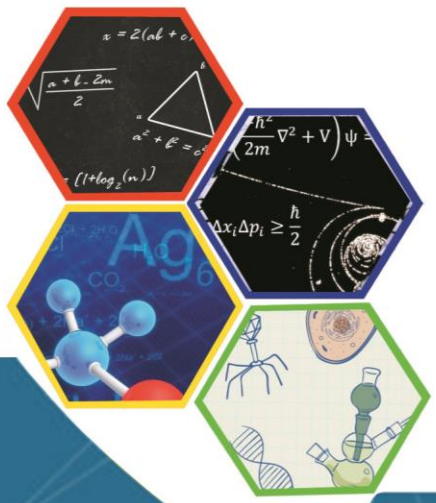
# PROCEEDING

## The 2nd International Seminar of Basic Science

## Natural Science For Exploration The Sea-Island Resources

Ambon, May 31st 2016

Organized by

Faculty of Mathematics and Natural Science

Pattimura University

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The 2nd International Seminar of Basic Science

*"Natural Science for Exploration The Sea-Island Resources"*

Poka-Ambon, 31st May 2016

**Mathematic and Natural Science Faculty**
**Universitas Pattimura**
**Ambon**
**2016**

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**ISBN : 978-602-97522-2-9**



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2nd edition

# Welcoming Address By The Organizing Committee

Today, We have to thank the The Almighty Allah SWT for the implementation of this international seminar. This is the second seminar about Basic Science in The Faculty of MIPA Pattimura University. The seminar under the title “Natural Sciences for Exploration the Sea-Island Resources” will be carried out on May 31st 2016 at Rectorate Building, Pattimura University. There are 200 participants from lecturers, research institute, students, and also there are 34 papers will be presented.

My special thanks refer to the rector of Pattimura University and the Dean of MIPA Faculty, Prof. Dr. Pieter Kakissina, S.Pd., M.Si. I also would like to express my deepest gratitude to Prof. Amanda Reichelt-Brushett, M.Sc., Ph.D. ; Kazuhiko Ishikawa, Ph.D. ; Nicolas Hubert, Ph.D. ; Prof. Dr. Kirbani Sri Brotopuspito ; Prof. Dr. Marjono, M.Phil. ; Gino V. Limon, M.Sc., Ph.D. as the keynote speakers.

The last, We hope this international seminar usefull for all of us, especially Mollucas People and very sorry if any mistake. Thank you very much.

**Dr. La Eddy, M.Si.**
Chairman of Organizing Committee

# Opening Remarks
# By Dean of Mathematic and Natural Sciences Faculty

I express my deepest gratitude to The Almighty God for every single blessing He provides us especially in the process of holding the seminar until publishing the proceeding of International Seminar in celebrating the 18th anniversary of MIPA Faculty, Pattimura University. The theme of the anniversary is under the title "Natural Sciences for Exploration the Sea-Island Resources". The reason of choosing this theme is that Maluku is one of five areas in Techno Park Marine in Indonesia. Furthermore, it is expected that this development can be means where the process of innovation, it is the conversion of science and technology into economic value can be worthwhile for public welfare especially coastal communities.

Having the second big variety of biological resources in the world, Indonesia is rich of its marine flora and fauna. These potential resources can be treated as high value products that demand by international market. Basic science of MIPA plays important role in developing the management of sustainable marine biological resources.

The scientific articles in this proceeding are the results of research and they are analyzed scientifically. It is expected that this proceeding can be valuable information in terms of developing science and technology for public welfare, especially people in Maluku.

My special thanks refer to all researchers and reviewers for your brilliant ideas in completing and publishing this proceeding. I also would like to express my gratefulness to the dies committee-anniversary of MIPA Faculty for your creativity and hard working in finishing this proceeding, God Bless you all.

**Prof. Dr. Pieter Kakisina, S.Pd., M.Si.**
Dean of Mathematic and Natural Sciences Faculty

# ACKNOWLEDGMENT

The following personal and organization are greatfully

acknowledgment for supporting

"The 2nd International Seminar of Basic Science 2016"

Hotel Mutiara Ambon

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# INVENTORY OF MEDICINAL PLANTS AND ITS UTILIZATION POTENTIAL IN POMBO ISLAND, CENTRAL MOLUCCAS

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## ABSTRACT

Indonesia is a rich country of plants diversity, including medicinal plants. The utilization of medicinal plants is one skill that is found in several places as a local wisdom by the community, including the Pombo island. This study aims to determine the diversity of medicinal plants used by communities around the Pombo island. By using methods of interview and exploration, we found 11 species of medicinal plants, such as *Cocos nucifera* L., *Catharanthus roseus* (L.) G. Don, *Leucaena leucocephala* (Lam.) De Wit, *Carica papaya*, *septica Ficus*, *Pandanus amaryllifolius* Roxb., *Terminalia catappa*, *Piper betle* L., *Alpinia galangal* L., *Eclipta alba* (L.) Hassk., and *Cyperus rotundus* L. The result shows that the part of plants which are most widely used as an alternative medicine is the leaf.

***Keywords***: medicinal plant, pombo island

## INTRODUCTION

Indonesia is an archipelago located in the equatorial region and was known as one of the countries which have the largest tropical forests with high biodiversity levels. Tropical forests have the 30,000 species of flowering plants with ecological benefits and more than 400 species of plants with high economic value (Jumari and Utami, 2003). Moreover, there are about 1,300 medicinal plants species and about 300 species of that number have been used for traditional medicine.

Medicinal plants have been used as traditional medicine since the ancient time, especially by indigenous communities. Traditional ethnic groups in Indonesia are living by utilizing a diversity of medicinal plants based on the traditional knowledge through the generations (Kumlalasari 2006). According to Sutrisno & Silitonga (2004), the utilization and management of germplasm by traditional ethnic groups, generally are based on the accumulation of local knowledge and policies that have been adhered to tradition and customary laws which are passed down through the generations. Consuming the medicinal plants was occurred in whole region of Indonesia, including Moluccas.

Astronomically, Moluccas is located at 2°30'-9° LS and 124°-136°BT consists of many islands with properties of medicinal plant diversity which has not been explored yet. One of them is the Pombo Island, where is located in District Salahutu, Central Moluccas or geographically located between the Haruku Island and Ambon island with an area less than 4 km2 (BPS Moluccas 2011). Pombo Island is one of the remote uninhabited island.

Nevertheless many Pombo birds, some species of animal, and some vegetation were found, including the medicinal plants.

Currently, development of technology has increased so that more types of medicinal plants are processed and can be packaged in modern way. Utilization of modern medicinal plants then developed into a natural healthy lifestyle. The objective of this study is to inventory the medicinal plants and its utilization potential in Pombo Island, Central Moluccas.

## MATERIALS AND METHODS

This study was conducted in April to May 2016. Observations and sampling was conducted in Pombo Island, Central Moluccas. Identification carried out in the Laboratory of Botany, Department of Biology, Faculty of Mathematics and Natural Sciences, University of Pattimura,Ambon.

The objects of this study are some species of potential medicinal plants and 70% of alcohol. This study used descriptive models with exploration. This model is used to get the facts of indicator and seek factual description of a group or region, committed against individuals or units, either by using a census or sample (Nasir, 1999 in Parosong et al, 2015). Stages of this study are include field observations intend to get general description of the study sites and to collect qualitative data support which are needed. Types of the data are quantitative and qualitative data. The parameters which are investigated include the species and number of medicinal plants, local name, parts are used, and the type of disease being treated. Communities in the Pombo Island are involved in the interview by answering the questions to find out the number of medicinal plant species which have been used for treatment prior to primary data collection. Primary data was collected selectively by explore the study sites using Exploration Method (Lucas and Maxey. 2006). Sampling of medicinal plants around the site roaming traversed. Samples of plant species which have been captured are identified in the Laboratory of Botany, Department of Biology, Universitas Pattimura. Plant identifications are based on morphological characteristics of the sample refer to some literature on medicinal plants.

Medicinal plants data obtained through the study are processed by classified, tabulated, and showed in tabular form. Then the data are analyzed descriptively to get the description of medicinal plants species which spread around the Pombo Island and its utilization as medicine in a comprehensive manner.

## RESULTS AND DISCUSSION

The results showed that there are 11 medicinal plants species found in the Pombo Island such as *Cocos nucifera* L., *Catharanthus roseus* (L.) G. Don, *Leucaena leucocephala* (Lam.) De Wit, Carica *papaya, septica Ficus, Pandanus amaryllifolius* Roxb., *Terminalia catappa, Piper betle* L., *Alpinia galangal* L., *Eclipta alba* (L.) Hassk., and *Cyperus rotundus* L. (see Table 1).

The interview results showed that these 11 species of the medicinal plants should not only be taken straight out of the Pombo Island to be used since these plants are also spread in the vicinity villages. Unless for the people who are fishing or travelers who accidentally take a rest on the Pombo Island.

From the interview, noted that the information about utilization of medicinal plants as alternative medicine, local name, parts used and usefulness. Kind of diseases treated by these medicinal plant species are classified as internal diseases and skin diseases. Most people use medicinal plants in the singular, but some are used in mixtures. For instance, leaves and root of papaya and pandan leaves have been used to treat malaria.

It is also showed that hereditarily, part of the plant most widely used in traditional medicine is the leaf because it is easy to obtain and was believed to have usefulness better than other parts of the plant. This is proved by Setyowati (2010) that leaf is the most widely used part because it is easily to be obtained. In addition, leaf has better usefulness (Farhatul, 2012).

Utilization of medicinal plants is obtainable by two ways. For external use, it is applied by affixed, smeared, buffed and taped, while for the internal disease is carried by mouth. Simplicia processing of medicinal plants made with boiled, crushed, shredded, crushed, and brewed. Generally,the consumption is by taken, affixed, smeared, edible, and rubbed into the affected part. This is consistent with Djauhariya, (2004) in Rosanti and Rupiah (2014), which stated that utilization of medicinal plants can be done by mouth, taped, inhaled so that can fit the concept of cell receptors work in receiving chemical compound or stimuli.

Tabel 1.Medicinal Plats Species Utilized by People around the Pombo Island, Central Moluccas

| No | Local Name | Family | Latin Name | Part(s) Used | Utilization |
|---|---|---|---|---|---|
| 1. | Kelapa/ Coconut | Arecaceae | *Cocosnucifera* L. | Fruit | Hypertension |
| 2. | Tapak dara/ Vinca | Apocynaceae | *Catharanthusroseus* (L.) G. Don | Leaf | Leukemia |
| 3. | Pete cina/ Chinese Petai | Fabaceae | *Leucaenaleucocephala* (Lam.) de Wit | Seed | Worms infestation medicine |
| 4. | Pepaya/ Papaya | Caricaceae | *Carica papaya* | Leaf and roots | Malaria |
| 5. | Awar – awar | Moraceae | *Ficus198septica* | Leaf | Inflammation |
| 6. | Pandan | Pandanaceae | *Pandanusamaryllifolius*Roxb. | Leaf | Malaria |
| 7. | Ketapan | Combretaceae | *Terminaliacatappa* | Bark | Diarrhea |
| 8. | Sirih/ Betel | Piperaceae | *Piper betle*L. | Leaf | Fever and to eliminate body odor |
| 9. | Lengkuas/ Galangal | Zingiberaceae | *Alpinia galangal* L. | Rhizome | Tinea Versicolor |
| 10. | Urang aring | Asteraceae | *Eclipta alba* (L.) Hassk. | Leaf | Water fleas |
| 11. | Rumput teki/ Sedges | Cyperacea | *Cyperusrotundus* L. | Leaf | Irritation |

## CONCLUSION

The results show that there are 11 medicinal plants species are found in the Pombo Island such as *Cocos nucifera* L., *Catharanthus roseus* (L.) G. Don, *Leucaena leucocephala* (Lam.) De Wit, *Carica papaya, septica Ficus, Pandanus amaryllifolius* Roxb., *Terminalia catappa, Piper betle* L., *Alpinia galangal* L., *Eclipta alba* (L.) Hassk., and *Cyperus rotundus* L., where the part of plants which are most widely used as an alternative medicine is the leaf. For further study, the test of the effects of pharmacological and phytochemical content contained in each medicinal plants which have been inventoried in this study are needed.

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Design By : Hanter Olong