

THE ISOLATION NATURAL
PRODUCTS OF ORGANIC ACID
AND SIMPLE PHENOL
COMPOUNDS BY
SAPONIFICATION METHOD (A
case studies compounds from
Enhalus acoroides seagrass)

by Laode Rijai

Submission date: 22-Jun-2019 04:41AM (UTC-0700)

Submission ID: 1146055552

File name: IC_ACID_AND_SIMPLE_PHENOL_COMPOUNDS_BY_SAPONIFICATION_METHOD.pdf (831.2K)

Word count: 866

Character count: 5265



UNIVERSITAS INDONESIA



UNESCO

PROCEEDING

INTERNATIONAL SEMINAR on

NATURAL PRODUCTS CHEMISTRY

and

UTILIZATION of NATURAL RESOURCES

ISBN 979 - 95131 - 6 - 2

June 5 - 7, 2000
Time: 08.00 - 16.00 W3

Universitas Indonesia
Depok, Indonesia

Alpinia galanga Willd.

2

International Seminar on Natural Products Chemistry and Utilization of Natural Resources
ISBN: 979-95131-6-2



UNIVERSITAS INDONESIA



UNESCO

PROCEEDING

INTERNATIONAL SEMINAR on
NATURAL PRODUCTS CHEMISTRY
and
UTILIZATION of NATURAL RESOURCES

Editor :

Prof. Soleh Kosela

Dr. Wahyudi Priyono

Dr. Endang Saepudin

Dr. Sumi Hudyono

Dra. Femi Roza

June 5 – 7, 2001

Universitas Indonesia
Depok, Indonesia

ISBN : 979 – 95131 - 6 - 2

International Seminar on Natural Products Chemistry and Utilization of Natural Resources
ISBN: 979-95131-6-2

The Isolation of Pectin from Cashew-apple <i>Djajeng Sumangat, Research Institute of Spices and Medicinal Corps., Bogor, Indonesia</i>	413
The Isolation Natural Products of Organic Acid and Simple Phenol Compounds by Saponification Methods (A Case Study on Seagrass of <i>Enhalus acoroides</i> species) <i>Laoderijai, Dept. of Chemistry, Fac. of Mathematics and Sciences, Universitas Mulawarman, Samarinda, Indonesia</i>	417
Antiagregation Thrombosis Activity of Andrographolide and Its Derivatives <i>S. Hudiyono PWS, Dept. of Chemistry, Fac. of Mathematics and Sciences, Universitas Indonesia Depok, Indonesia</i>	420
Confirmation of Transformation of <i>Petunia hybrida</i> Using PRC and Southern Analysis <i>Donowati Tjokrokusuma, Agency for Assesment and Application of Technology (BPPT), Jakarta, Indonesia</i>	426
Isolation and Identification of Compounds from <i>Caesalpania sappan</i> L. and their Activities as Scavenger Superoxide Radicals and Inhibitor of Xanthine Oxidase <i>Ratu Safitri, Dept. of Chemistry, Fac. of Mathematics and Sciences, Universitas Padjadjaran, Bandung, Indonesia</i>	433
Antibacterial Activity of Gargle Solution Containing clove oils <i>Nanan Nurdjannah, Research Institute for Spices and Medicinal Plants, Bogor, Indonesia</i>	440
The Isolation of Piperin of a Long Pepper and Black Pepper <i>Sri Yuliani, Research Institute for Spices and Medicinal Plants, Bogor, Indonesia</i>	445
Effects on Bioactive Protein from Hairy Roots Culture of <i>Luffa cylindrica</i> (L.) Roem on Tumor Cell <i>Christiani, Dept. of Biology, Fac. of Mathematics and Sciences, the State University of Jakarta, Jakarta, Indonesia</i>	450
Stereo-Controlled Synthesis of a Tetracyclic Sesterpenoid (+)-Scala Renedial <i>Haritati Soetjipto, Dept. of Biology, Fac. of Mathematics and Sciences, the State University of Jakarta, Jakarta, Indonesia</i>	454
In Vitro Antiplasmodial Activity of Alkaloid Fraction of Chloroform Extract of <i>Cassia siamea</i> Leaves <i>Wiwied Ekasari, Fac. of Pharmacy, the Airlangga University, Surabaya, Indonesia</i>	461

THE ISOLATION **NATURAL PRODUCTS OF** ORGANIC ACID AND SIMPLE PHENOL
COMPOUNDS BY SAPONIFICATION METHOD

(A case studies compounds from *Enhalus acoroides* seagrass)

LAODE RIJAI, Kumanireng, A.S, And Alfian Noor

Departemen of Chemistry, Mulawarman University

Departemen of Chemistry, Hasanuddin University

ABSTRACTS

The saponification methods have been used to isolate organic acid and simple phenol compounds from *Enhalus acoroides* seagrass. Saponification system direct on their extracts crude. Extraction manner by maseration system gradually starting of low to high polarities solvents that is n-hexan; benzen-ethylacetate; acetone; and methanol respectively. On the each extracts crude of traction saponificating with NaOH 0.1 N by reflux system. which will give two main acid (saponificated) and neutral (ansaponificated) fractions. Saponificated fraction is become notice, while ansaponificated (neutral) not report. In the ansaponificated fraction will be contain polyphenol. triterpena, or other large moleculers, whereas saponificated expecting contain organic acid and simple phenol compounds. Sodium atomic within saponificated compounds drawed out by HCl 2 N by reflux system and will be formated NaCl the think soluble in watter layer, while organic acid and simple phenol there in organic layer. This organic extracts TLC test to know spot profile that there. The result TLC test is n-hexan fraction there 2 spots; benzen-ethylacetate 2; acetone 3; and methanol fraction 3 spots major. The spots of all fraction making Co-TLC test to give Rf value be different. This it indicate that all spots is compounds different. In the each fraction fractionatng by chromatography column used silica gel and was obtain; n-hexan fraction was 1 white crystal (no stabil); benzen-ethylacetate 1 white crystal; acetone 3 liquids; and methanol fraction is 1 white crystal. The isolated from benzenethylacetate and methanol fractions characterizing by used IR, IS, ¹H NMR. ¹³C NMR. The interpretation result of isolated spectrum data is hydroquinone from benzen-ethylacetate fraction and salicylic acid of methanol fraction. Several spots of the fractions not separated by the conventional chromatography column, therefore have to use HPLC preparative or other separations equipments. This saponification method have been result respectable sufficient. For separation of organic acid and simple phenol compounds in the extracts naspecificly better use sophisticated equipments as such HPLC preparative.

I. Introduction

The Polyphenol was portion greated of natural product chemistry in the plants (Wong in Buttler, 1973). Molecular size of polyphenol depended of the simple phenol their composer or there glucoside. The bonding of inter simple phenol on the polyphenol moleculer frequency weak since have hydroxyl groups very much (Thomas in Cuttler. 1987). According to Harwood et at. (1989) the polyphenol can be degradated when infected of microbials or thorough isolation process. The bioactivity of simple phenols or phenolic acids sometime more significant until be needed degradation of nature polyphenol

1

International Seminar on Natural Products Chemistry and Utilization of Natural Resources
ISBN: 979-95131-6-2

compounds. This research will be degradation polyphenol of seagrass *E. acoroides* plant by saponification method used sodiumhydroxy to give simple phenol and organic acid compounds.

II. Research Method

The materials researching seagrass *E. acoroides*. that is a sea plant which may be finding at world. The thing have a territorial sea waters especially Asia-Pacific. The extraction method by system gradually that is; n-hexane, benzene-ethylacetate, acetone, and methanol In the each extract crudes that obtaining of fraction saponificating by sodiumhydroxyde. This is sceme of isolation.

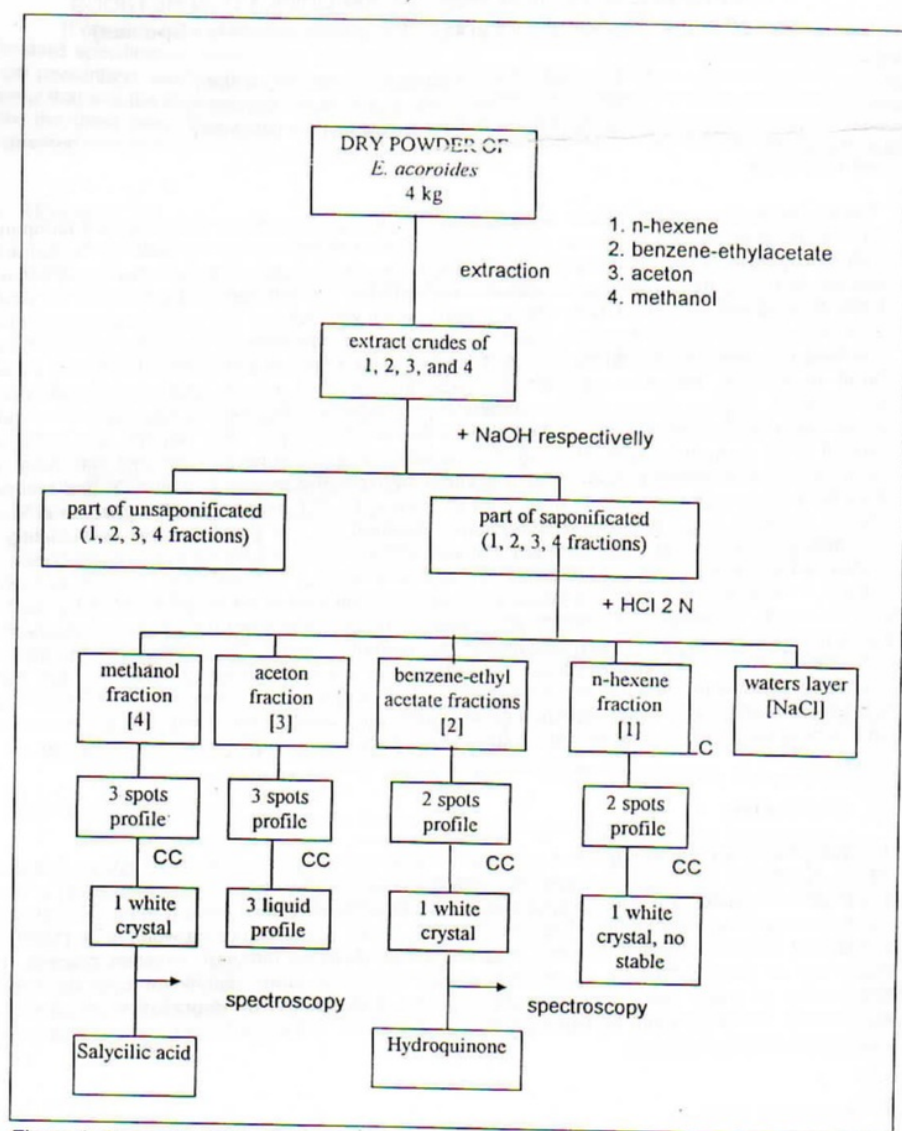


Figure 1. Sceme isolation of natural products chemistry organic acid and simple phenol from seagrass *E. acoroides* plant

III. RESULTS AND DISCUSSION

The results TLC test in the each traction that is two spots of traction n-hexene. two of benzene-ethylacetate; three of acetone. and three spots of methanol fraction. On the all spots of four fraction to give Rf value be different, which indicate that they were be different compounds. Therefore saponification method on direct extracts crude succeed. In the each of traction fractionating by column chromatography conventional. Results of the fractionation was one white crystal of traction methanol, one of benzene-ethylacetate fraction, three liquid isolated of acetone traction, along with one white crystal not stable of n-hexene traction. The isolated compounds of methanol and benzene-ethylacetate fraction has been characterizing by IR. MS. ¹H NMR and ¹³C NMR. The interpretation results isolated spectrum of benzene-ethylacetate was hydroquinone and salicylic acid from methanol fractions. Crystal Of n-hexene fraction can not characterizing because not stable along with three isolated compounds of acetone fraction not yet identifying

IV. CONCLUSION AND RECOMMENDATION

The saponification method to isolate organic acid and simple phenol compounds was succeed, especially on seagrass *E. acoroides* specie. The expecting unsaponificated constituent isolating to accordance with part saponificated.

V. REFERENCES

1. Harwood. L. M.⁴ 1989; Experimental Organic Chemistry; Blackwell Scientific Publications; London
2. Thomas, P.; Phenol Glycosides in Plant Defense Against Herbivores dalam Cuttler, G.: 1987; Biologically Active Natural Products Potential Use in Agriculture; ACS; Washington.
3. Wong. A.; Plant Phenolic; dalam Buttler, G. W., 1973, Chemistry and Biochemistry of Herbage; Academic Press; London and New York.

THE ISOLATION NATURAL PRODUCTS OF ORGANIC ACID AND SIMPLE PHENOL COMPOUNDS BY SAPONIFICATION METHOD (A case studies compounds from Enhalus acoroides seagrass)

ORIGINALITY REPORT

11%

SIMILARITY INDEX

10%

INTERNET SOURCES

9%

PUBLICATIONS

9%

STUDENT PAPERS

PRIMARY SOURCES

1	repository.uksw.edu Internet Source	4%
2	espace.library.uq.edu.au Internet Source	4%
3	ir.library.oregonstate.edu Internet Source	1%
4	www.i-scholar.in Internet Source	1%
5	Submitted to Tufts University Student Paper	1%

Exclude quotes On

Exclude matches < 1%

Exclude bibliography On

THE ISOLATION NATURAL PRODUCTS OF ORGANIC ACID AND SIMPLE PHENOL COMPOUNDS BY SAPONIFICATION METHOD (A case studies compounds from Enhalus acoroides seagrass)

GRADEMARK REPORT

FINAL GRADE

/0

GENERAL COMMENTS

Instructor

PAGE 1

PAGE 2

PAGE 3

PAGE 4

PAGE 5

PAGE 6
