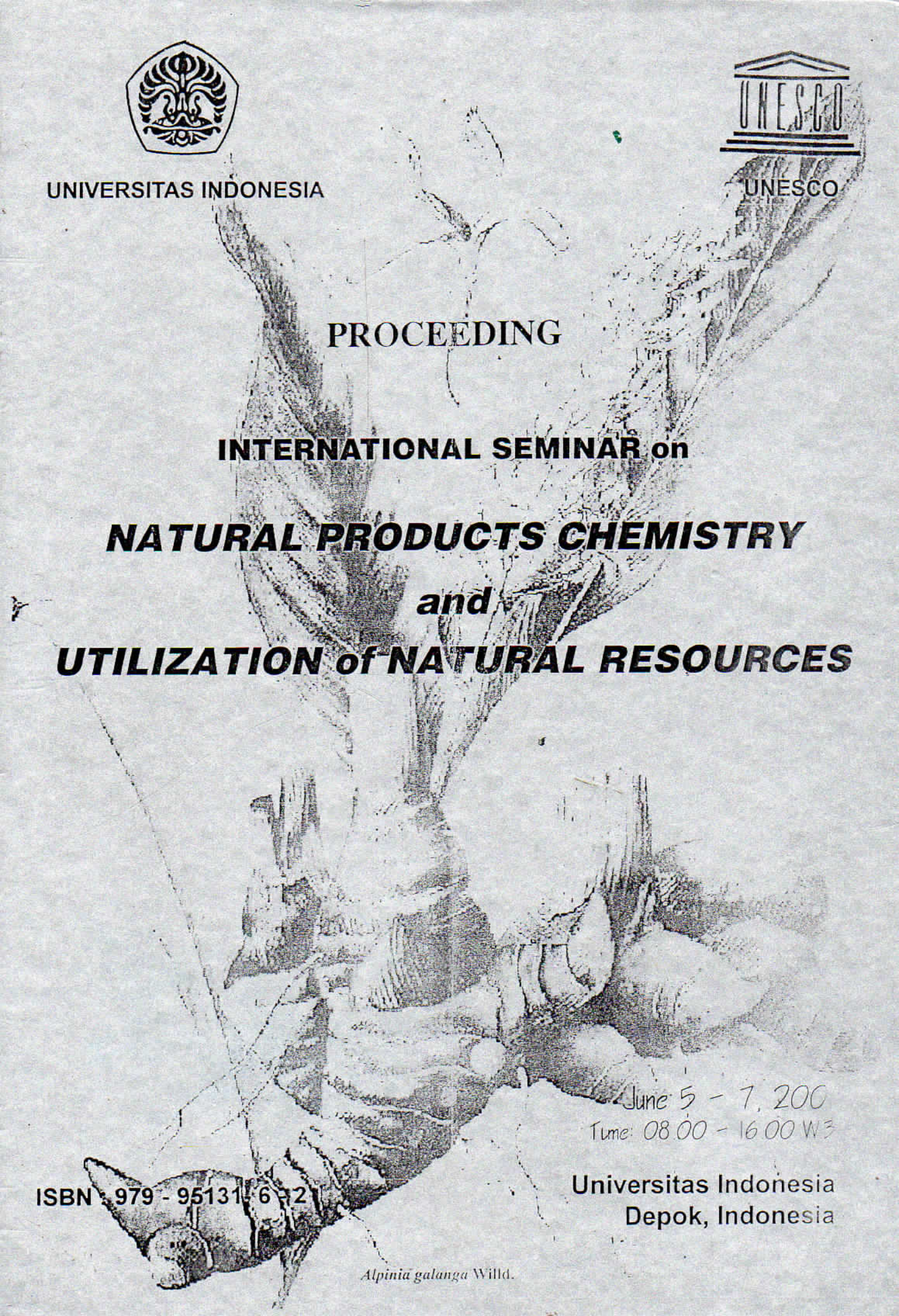
UNIVERSITAS INDONESIA

UNESCO

PROCEEDING

INTERNATIONAL SEMINAR on

NATURAL PRODUCTS CHEMISTRY and UTILIZATION of NATURAL RESOURCES



June 5 - 7, 200
Time: 08.00 - 16.00 WI

ISBN : 979 - 95131 - 6 - 2

Universitas Indonesia
Depok, Indonesia

Alpinia galanga Willd.

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 Hudiyono

Dra. Femi Roza

June 5 – 7, 2001

Universitas Indonesia
Depok, Indonesia

ISBN : 979 – 95131 - 6 - 2

ISBN : 979-95131-6-2

THE ISOLATION NATURAL PRODUCTS OF ORGANIC ACID AND SIMPLE PHENOL COMPOUNDS BY SAPONIFICATION METHODS (A Case Studies on Seagrass of *Enhalus acoroides* Species)

Laode Rijai[1], Kumanireng, A.S.[2], and Alfian Noor[2]
[1]Department of Chemistry, Mulawarman University
[2]Department 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; aceton; and methanol respectively. On the each extracts crude of fraction saponficating 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; aceton 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 fractionating by chromatography column used silica gel and was obtain; n-hexan fraction was 1 white crystal (no stabil); benzen-ethylacetate 1 white crystal; aceton 3 liquids; and methanol fraction is 1 white crystal. The isolated from benzenethylacetate and methanol fractions chracterizating by used IR, MS, ^{1}H NMR, ^{13}C NMR. The interpretation result of isolated spectrum data is hydroquinone from benzen-ethylacetate fraction and salycilic 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 respecitvely better use sophisticated equipments as such HPLC prepartive.

I. Introduction

The polyphenol was portion greated of natural products chemistry in the plants (Wong in Buttler, 1973). Moleculer 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 hydroxy groups very much (Thomas in Cuttler, 1987). According to Harwood et al. (1989) the polyphenol can be degradated when infected of microbials or thorough isolation process. The bioactivity of simple phenols or phenolic acids sometime more siginificant until be needed degradation of nature polyphenol 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. acorcides*, that is a sea plant which may be finding at world the thing have a teritorial sea waters especially Asia-Pacific. The extraction method by system gradually tha is; n-hexene, benzene-ethylacetate, aceton, and methanol. In the each extract crudes that obtaining of fraction saponificating by sodiumhydroxyde. This is sceme of isolation.

ISBN : 979-95131-6-2

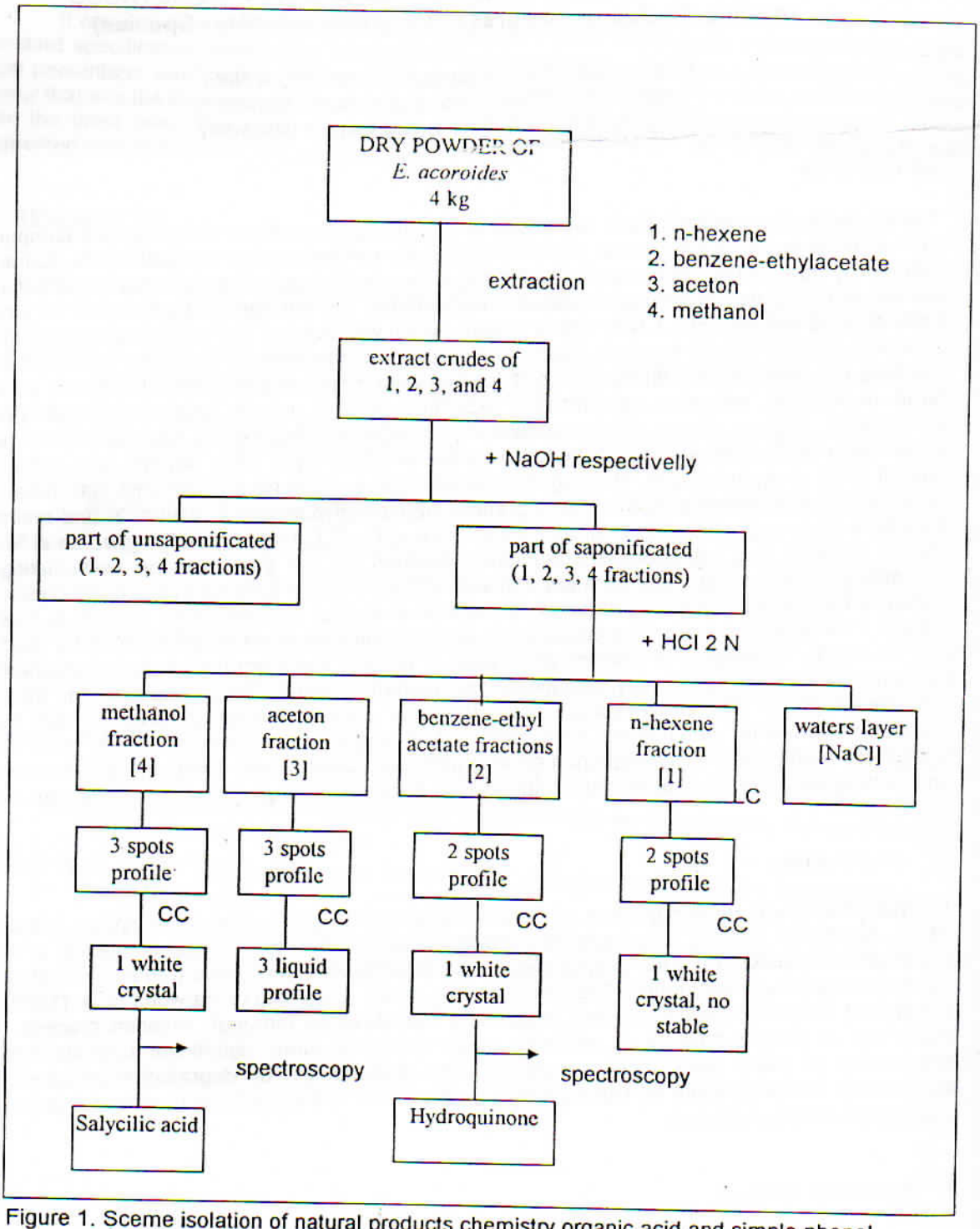


Figure 1. Sceme isolation of natural products chemistry organic acid and simple phenol from seagrass *E. acoroides* plant

III. RESULTS AND DISCUSSION

The results TLC test in the each fraction that is two spots of fraction n-hexene, two of benzene-ethylacetate; three of aceton, 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 suceed. In the each of fraction fractionating by column chromatography conventional. Results of the fractionation was one white crystal of fraction methanol, one of benzene-ethylacetate fraction, three liquid isolated of aceton fraction, along with

ISBN : 979-95131-6-2

one white crystal not stable of n-hexene fraction. The isolated compounds of methanol and benzene-ethylacetate fraction has been characterizating by IR, MS, ^{1}H NMR, and ^{13}C NMR. The interpertation results isolated spectrum of benzene-ethylacetate was hydroquinone and salycilic acid from methanol fractions. Crystal of n-hexene fraction can not characterizating because not stable along with three isolated compounds of aceton fraction not yet identificating

IV. CONCLUSION AND RECOMMENDATION

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

V. REFFERENCES

1. Harwood, L. M.' 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.

ISBN : 979-95131-6-2