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and

UTILIZATION of NATURAL RESOURCES

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Universitas Indonesia
Depok, Indonesia

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

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

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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 fraction 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 moluculars, 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 fractionating 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, MS, ¹H NMR, ¹³C 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 respectivly better use sophisticated equipments as such HPLC preparative.

I. Introduction

The polyphenol was portion greated of natural products 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 molecular 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 significant until be needed degradated of nature polyphenol compounds. This research will be degradated 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 teritorial sea waters especially Asia-Pacific. The extraction method by system gradually tha is; n-hexene, benzene-ethylacetate, acetone, and methanol. In the each extract crudes that obtaining of fraction saponificating by sodiumhydroxyde. This is sceme of isolation.

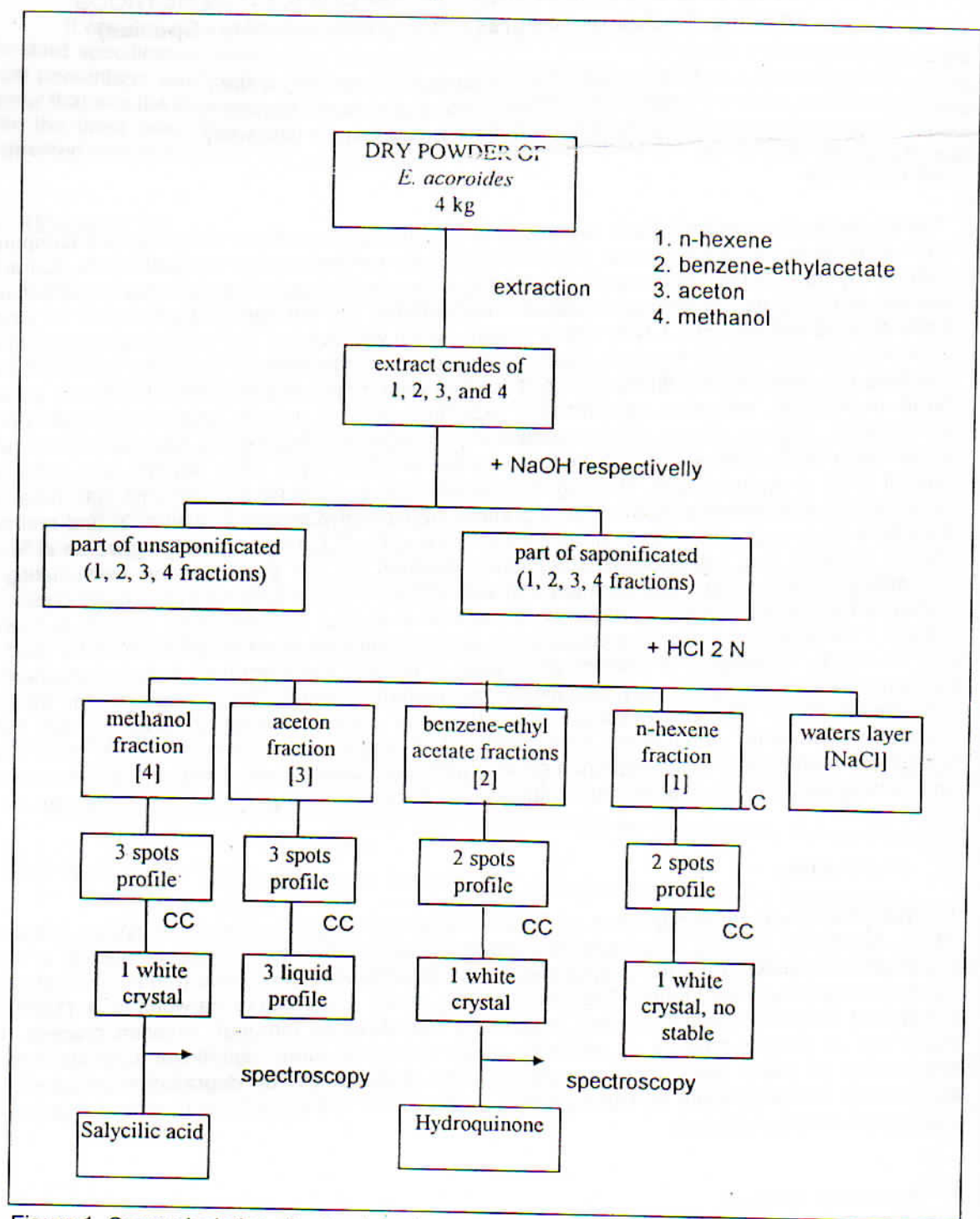


Figure 1. Scheme isolation of natural products chemistry organic acid and simple phenol from seagrass *E. acoroides* plant

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 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 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 acetone fraction, along with

one white crystal not stable of n-hexene fraction. The isolated compounds of methanol and benzene-ethylacetate fraction has been characterizing by IR, MS, ^1H NMR, and ^{13}C NMR. The interperation 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* speciec. The expecting unsaponificated constituent isolating to accordance with part saponificated.

V. REFFERENCES

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