39th Meeting of National Working Group on Indonesian Medicinal Plant

PROCEEDING

INTERNATIONAL CONFERENCE AND TALK SHOW
ON MEDICINAL PLANT
Effective, Safe and Qualified Herbal Medicine for Diabetes Mellitus Treatment

Jakarta, 19th – 21st of October 2010

Organized by:
Agency for the Assessment and Application of Technology (BPPT)
National Working Group on Indonesian Medicinal Plant (POKJANAS TOI)
Association of Indonesian Herbal Medical Doctors (PDHMI)

Supported by:
Deutscher Akademischer Austauch Dienst (DAAD)
PROCEEDING INTERNATIONAL CONFERENCE AND TALK SHOW ON MEDICINAL PLANT “Effective, Safe and Qualified Herbal Medicine for Diabetes Mellitus Treatment”


ISBN:

978-602-95911-1-8

PUBLISHER
Center for Pharmaceutical and Medical Technologies
Agency for the Assessment and Application of Technology
BPPT Building II, 15th Floor
Jl. MH Thamrin No. 8, Jakarta 10340
INDONESIA
WELCOME MESSAGE

Praise and gratitude towards Allah who has given His Grace so that the International Conference and Talk Show on Medicinal Plant could be conducted in BPPT Jakarta on the 19th – 21st October 2010.

This International Conference and Talk Show on Medicinal Plant which is also the 39th Meeting of National Working Group on Indonesian Medicinal Plant is organized by BPPT in collaboration with the National Working Group on Indonesian Medicinal Plants (POKJANAS TOI), Deutscher Akademischer Austausch Dienst (DAAD) and the Association of Indonesian Herbal Medical Doctors (PDHMI). This Conference is an effort to develop the national herbal medicine industry and as a venue for researchers, policy makers, clinicians, industrialists and observers of the herbal medicine to gather and discuss the issues regarding herbal medicine.

The theme of this Conference is “Effective, Safe and Qualified Herbal Medicine for Diabetes Mellitus Treatment”. This theme was chosen because diabetes mellitus is one of diseases that could become a serious threat to public health in the future and currently herbal medicine has not been optimally utilized for the treatment of various diseases, especially diabetes mellitus. This Conference is expected to provide an overview of recent advances in herbal medicine technology, herbal medicine role in the treatment of diabetes, the problems faced by the herbal medicine industry and alternative solutions.

This conference has brought together 88 research papers from researchers of various institutions with a variety of topics, ranging from the cultivation aspects to clinical trials which provide an overview of the research currently conducted by research institution in Indonesia. Through this Conference, it is expected that research institutions with similar interest could collaborate to accelerate research in Indonesian and also as a venue for facilitating collaboration between research institutes, universities and industries.

The committee realizes that there are still many shortcomings that may be less than satisfactory to many parties. Criticisms and suggestions are expected to improve this organization of seminars in the future.
On this occasion the committee expressed the highest appreciation to the guest speakers, papers contributors, participants and sponsors for their cooperation in organizing the International Conference and Talk Show on Medicinal Plant

Jakarta, 19th of October 2010

Organizing Committee
International Conference and Talk Show on Medicinal Plant
The Agency for the Assessment and Application of Technology
BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI (BPPT)
BPPT Chairman

His Excellency The Minister of Science and Technology, Mr. Suharna Surapranata
The Director of Deutscher Akademischer Austauch Dienst (DAAD), Indonesia
Chairman of The Association of Indonesian Herbal Medical Doctors (PDHMI)
Distinguished Speakers from China, Malaysia and Republic of Korea
Chairmen of Pharmaceutical Industries,
My colleagues and all participants,
Ladies and Gentlemen,

Assalamu Alaykum wa rahmatullahi wa barakatuh.
Good morning, Selamat Pagi, Salam Sejahtera untuk kita semua.
May God Almighty blesses us in conducting this event

Let us start by expressing our gratefulness to God almighty. His bless and mercy has given us opportunity to be here in the great and special event of International Conference and Talkshow on Medicinal Plants which focus on the theme of “Effective, Safe and Qualified Herbal Medicine for Diabetes Mellitus Treatment”.

I am delighted to welcome all distinguished guests, invited speakers and participants. To speakers coming from overseas, welcome to Jakarta and welcome to Indonesia. Jakarta is very wet at the moment, due to heavy rain in the last couple of months. I hope this will not discourage you to enjoy your visit to Jakarta.
In this very important moment, allow me to thanks to the committee who has been working very hard to bring this event into reality. I also would like to express a special thank to the Assosiation of Indonesian Herbal Medical Doctors (PDHMI) who has been actively involved and support to this event. And to Deutscher Akademischer Austauch Dienst (DAAD) or German Agency for Academic Exchanges as a main sponsor, gratitude thanks and most appreciation shall be addressed.

Ladies and Gentlemen,

I would like to draw your attention that BPPT as a research agency under coordination of the Ministry of Research and Technology, highly supports the development of herbal medicines as one of the BPPT program on health and pharmaceutical sector especially in fulfilling the national self-sufficiency on medicines. Beside Health and medicine, BPPT is conducting other focused program, namely food, energy, ICT, transportation, defence, environment, and manufacturing.

I would like to highlight here that herbal medicine development is strategic choice for developing country like Indonesia where mega biodiversity is one of its comparative advantages. Currently, chemical and semi-chemical drug industries has been dominated by global pharmaceutical industries in developed countries. For this reason, competition in this area is not beneficial for Indonesian pharmaceutical industries where its industrial structure in general, is still very weak and need to be further developed. The choice to promote program on herbal medicine development is the fact that this program has strong national capacity building from upstream to downstream processes by using locally available resources and involving various stakeholders.

Ladies and gentlemen,

This is our main mission to relate the most suitable technology to significantly increase the added value of our bioresources in order to support our national herbal medicine industries. Knowledge and technology would be a fundamental tools in the development of herbal medicine industries which enable to support national economic growth (known as knowledge based economy).

I do realise that to achieve the noble goal is not trouble-free. We need an active participation of all players not only from government institutions as fasilitatory and regulatory bodies, but also from private sectors, academicians as well as researchers to work hand-in-hand toward the best
in the utilization of knowledge and local resources in natural product development.

Ladies and gentlemen,

Since the enthusiasm of back to nature have been gaining popularity and acceptance in recent decade, national herbal medicine industries should become one of the pillars of national economic development. This is also supported by the fact that Indonesia has a second largest biodiversity in the word, with more than 30,000 species of plants. The number of herbal medicine industries keep increasing, numbering to 1,500 companies, big and small corporation. According to Herbal Medicine Entrepreneur Association (GP Jamu) data in 2007, not less than 3 million people works on herbal medicine sector from upstream to downstream industries. The market share of herbal medicine has growing significantly, up to 15-20% yearly.

We all hope that herbal medicine will not only fulfil local and national market, but more than that will expand to other countries, as export commodity.

Ladies and gentlemen,

As I have just mentioned before, BPPT, through the Centre of Pharmaceutical and Medical Technology - fully supports the herbal medicine development. I hope throughout this great forum, all stakeholders involved in the utilization of medicinal plants will stumble on the best and most suitable ways to develop our biological resources as health products. We would like to utilize our biodiversity as source of natural products to prevent and cure diseases, especially degenerative diseases such as diabetes mellitus, and also to promote our well being. To PDHMI, the Association of Indonesian Herbal Medical Doctors we would certainly relay on your share in using herbal medicine as part of formal health services.

At last, we should work closely with all experts and institutions who concern in this area not only from our national side but also from abroad. Therefore, BPPT is continually welcome to all collaborators from national as well as international institutions based on our mutual benefit for each parties involved.

Ladies and gentlemen,

Once again, I would like to thanks to the committee, sponshors, speakers and participants and wishing all a successful symposium.
Finally, by saying “Bismillahirrohmanirrohim”, in the name of GOD Almighty, the Most Gracious and the Most Merciful, I have the great pleasure to declare the International Conference and Talkshow on Medicinal Plants is officially opened.

Thank you very much for your passion and kind attention,

Wassalamu’alaykum warahmatullahi wabarakatuhu

BPPT Chairman,

Dr. Ir. Marzan Azis Iskandar
CONTENT

Welcome Message i
Opening Speech by BPPT Chairman iii
Content vii
RECENT ADVANCES OF NATURAL PRODUCT RESEARCH 1
Wahono Sumaryono

DIURETIC EFFECT OF AQUEOUS EXTRACT OF LEAF OF 22
Averrhoa bilimbi L. IN WISTAR RATS
Afifah B. Sutjiatmo, Elin Yulina, Suswini K., Suci Narvikasari,
Ita Nur Anisa

HYPOGLYCAEMIC ACTIVITY OF AQUEOUS EXTRACT OF 27
LEAVES OF Strobilanthes crispa L. IN MALE WISTAR RATS
USING GLUCOSE TOLERANCE TEST METHOD
Afifah B. Sutjiatmo, Sri Wahyuningsih, Suci Nar Vikasari,
Sri Wijayanti

COMPARATIVE STUDY OF PRIMOJEL® 2%, 5%, & 8% TO 32
PHYSICAL CHARACTERISTICS OF TABLET FROM DRIED
EXTRACT Murraya paniculata (L.) Jack LEAVES
Agnes Nuniek Winantari, I. I. Panigoro, Ferrany

IN VITRO BIOASSAY OF N-BUTANOL ISOLATE OF Acorus 38
calamus L. ON INHIBITORY OF ACTIVITY α-GLUCOSIDASE
Ahmad Najib, Sri Hartati, Berna Elya

ISOLATION OF MAJOR COMPOUND HEXANE FRACTION FROM 44
Piper betle L. LEAVE AND CHROMATOGRAM PROFILE
Ahwan, Haryoto, Haikal Sofyan Arif

CLINICAL STUDY OF ETHANOL EXTRACT OF Justicia 49
gendarussa Burm. f. LEAVES IN MALE FERTILITY
Bambang Prajogo E.W., Hudi Winarso, Kasmijati, Aucky Hinting;
Dyan Pramesti, Maria Anggraeni, Achmad Radjaram,
Dwi Setiawan, Sri Musta’ina, Noor Cholies Zaini

THE MECHANISM OF ACTION INVESTIGATION OF 60
ROCAGLAMIDES AS ANTIPROLIVERATIVE AGENTS IN CHRONIC
MYELOID LEUKEMIA USING PATHWAY-BASED PREDICTION BY
COMPUTATIONAL DOCKING
B.S. Ari Sudarmanto, Fajar S. Wibowo, Chaidir
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFFECT OF <em>Curcuma xanthorrhiza</em> EXTRACT ON LYMPHOCYTE CELL PROLIFERATION</td>
<td>70</td>
</tr>
<tr>
<td>Churiyah, Tarwadi, Fery Azis Wijaya, Elrade Rofaani</td>
<td></td>
</tr>
<tr>
<td>CYTOTOXIC ACTIVITY OF MARINE SPONGE <em>Petrosia</em> sp. FROM WEST SUMATERA, INDONESIA</td>
<td>77</td>
</tr>
<tr>
<td>Dian Handayani, Mega Yulia, Yohannes Allen</td>
<td></td>
</tr>
<tr>
<td>INHIBITION EFFECT OF SIDAGURI (<em>Sida rhombifolia</em>) AND CELERY (<em>Apium graveolens</em>) EXTRACT FORMULA ON THE ACTIVITY OF XANTHINE OXIDASE AND ITS ANTI-INFLAMMATION EFFECT</td>
<td>81</td>
</tr>
<tr>
<td>Dyah Iswantini, Iskandar, Lukmanul Hakim.</td>
<td></td>
</tr>
<tr>
<td>METHANOL EXTRACT DERIVED FROM NIAS’S AND MENTAWAI’S SPONGES AND SOFT CORALS AS ANTI ANGIogenesis</td>
<td>91</td>
</tr>
<tr>
<td>Dyah Iswantini, Min Rahminiwati, Latifah K Darusman, Rudi Heryanto</td>
<td></td>
</tr>
<tr>
<td>SIMULTANEOUS ANALYSIS OF PARACETAMOL, PROPYPHENAZONE AND CAFFEINE MIXTURE IN TABLETS</td>
<td>100</td>
</tr>
<tr>
<td>Effendy De Lux Putra, Muchlisym, Mustika Furi, Nerdy</td>
<td></td>
</tr>
<tr>
<td>ANTIBACTERIAL POTENTIAL OF MARINE ALGAE COLLECTED FROM SOUTH SULAWESI COAST AGAINST HUMAN PATHOGENS</td>
<td>115</td>
</tr>
<tr>
<td>Elmi Nurhaidah Zainuddin</td>
<td></td>
</tr>
<tr>
<td>PROGRESS RESEARCH OF TEMOELAWAK (<em>Curcuma xanthorrhiza</em> Roxb.) TO PROVIDE HEALTHY PLANTING MATERIAL BY IN VITRO CULTURE</td>
<td>128</td>
</tr>
<tr>
<td>Endang Hadipoentyanti, Sitti Fatimah Syahid</td>
<td></td>
</tr>
<tr>
<td>EVALUATION OF GROWTH, PRODUCTIVITY AND OIL QUALITY FOUR PROMISING NUMBERS OF MENTHA (<em>Mentha arvensis</em> L.)</td>
<td>144</td>
</tr>
<tr>
<td>Endang Hadipoentyanti, Sri Suhesti, Amalia, Nursalam</td>
<td></td>
</tr>
<tr>
<td>EFFECT OF GROWTH ENVIRONMENT AND CULTIVATION METHODS SMAL WHITE GINGER (<em>Zingiber officinale, L. var.amarum</em>) ON SEED PRODUCTION, FARMER INCOME AND FEASIBILITY OF FARMING SYSTEM</td>
<td>152</td>
</tr>
<tr>
<td>Ermiati, Sukarman</td>
<td></td>
</tr>
<tr>
<td>ECONOMIC ANALYSIS OF FARMING SYSTEM WHITE BIG GINGER (<em>Zingiber Officinale L. Var. Officinale</em>) SEED PRODUCTION</td>
<td>161</td>
</tr>
<tr>
<td>Ermiati, Sukarman</td>
<td></td>
</tr>
</tbody>
</table>
TABLET FORMULATION OF *Andrographis paniculata* Ness DRY EXTRACT BY DIRECT COMPRESSION METHOD

*Etik Mardliyati, Hafizah, Farida Sulistiauwati*

ANTIMICROBIAL OF SOME PARASITE PLANT IN THE FAMILY LORANTHACEAE

*Fairus Zabadi, Haryoto, Peni Indrayudha*

STRUCTURE MODIFICATION OF THYMOQUINONE AND CYTOTOXICITY OF THE PRODUCTS AGAINST HEPATOCELLULAR CARCINOMA (HepG2) CELLS

*Firdayani, Siswandono, Marcellino Rudyanto*

STUDY ON THE DPPH AND α-GLUCOSIDASE INHIBITORY POTENTIAL OF VARIOUS GAMBIER AVAILABLE IN INDONESIAN MARKET

*Galuh Widiyarti, Andini Sundowo*

ANTIOXIDANT ACTIVITY OF TOTAL PHENOLIC COMPOUND IN HEXANE FRACTION FROM *Piper betle* L. LEAF WITH DPPH METHODE

*Haryoto, Ahwan, Andika Punama Devi*

ACUTE TOXICITY TEST OF *Typhonium divaricatum* *(KELADI TIKUS)* ETHANOL EXTRACT IN MICE

*Indah.D.Dewijanti, Marissa Angelina, Sofna D. Banjarnahor, Rina Andriyani, M. Hanafi*

ANTIPLASMODIAL EVALUATION OF ONE COMPOUND FROM *Calophyllum depressinervosum*

*Jamilah Abbas, Nina Artanti, Puspa Dewi, Puji Budi Setia Asih, Syafruddin*

CYTOTOXIC COMPOUND FROM *Calophyllum* spp *(GUTTIFERAE)*

*Jamilah Abbas*


*Kartini Zailanie, Sri Dayuti*

CORRELATION BETWEEN CYTOTOXIC ACTIVITY ON MCF-7 CELL AND TOTAL STEROID LEVEL ON *Trigonella foenum-graecum*L

*Kurnia Agustini, Wahono Sumaryono, Azri Fitria*
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROLE OF NATURAL POLYSACCHARIDES XANTHAN GUM-LOCUST BEAN GUM IN PER-ORAL DRUG DELIVERY SYSTEMS</td>
<td>246</td>
</tr>
<tr>
<td>Lannie Hadisoewignyo, Achmad Fudholi</td>
<td></td>
</tr>
<tr>
<td>CYTOTOXIC EFFECT OF ETHANOL AND WATER EXTRACT OF Centella asiatica ON HUMAN BREAST CANCER T47D CELLS</td>
<td>253</td>
</tr>
<tr>
<td>Lucia Hendriati, Ferawati, Adrianta Surjadhana, Arijanto Jonosewojo, Elisabeth Catherina Widjajakusuma</td>
<td></td>
</tr>
<tr>
<td>ACUTE TOXICITY STUDIES OF Brucea javanica Merril LEAVES</td>
<td>258</td>
</tr>
<tr>
<td>Marissa A., Indah D. Dewijanti, Banjarnahor S.D.S, Megawati M. Hanafi</td>
<td></td>
</tr>
<tr>
<td>PHYTOCHEMISTRY, TOXICITY AND ANTIOXIDANT ACTIVITIES OF Kalanchoe pinnata (Lam.) Pers. LEAVES EXTRACTS</td>
<td>272</td>
</tr>
<tr>
<td>Megawati, A. Darmawan, Sofia Fajriah, Lia Meilawati</td>
<td></td>
</tr>
<tr>
<td>IN VITRO ACTIVITY OF CERTAIN PLANT EXTRACTS IN COMBINATION WITH VANCOMYCIN AGAINST METHYLCILIN RESISTANT Staphylococcus aureus</td>
<td>265</td>
</tr>
<tr>
<td>Murti, Y.B., Utami, D., Triutami, S., Cahayani, D.D., Mirayany, B.F., Ratnasari, D.</td>
<td></td>
</tr>
<tr>
<td>POTENSI EKSTRAK ETANOL TUMBUHAN BABANDOTAN (Ageratum conyzoides L) SEBAGAI BAHAN ANTIKANKER.</td>
<td>277</td>
</tr>
<tr>
<td>Pertamawati, Nuralih</td>
<td></td>
</tr>
<tr>
<td>INUKSI PEMBENTUKAN BATU GINJAL PADA TIKUS PUTIH JANTAN GALUR Sprague Dawley SECARA KIMIAWI UNTUK UJI EFIKASI HERBAL PELURUH BATU GINJAL (KALSIUM OKSALAT)</td>
<td>281</td>
</tr>
<tr>
<td>Pertamawati, Sriningsih, Kurnia Agustini,</td>
<td></td>
</tr>
<tr>
<td>MELEAGRINE, A ISOLATE COMPOUND FROM SKY III.2.1 AN ENDOPHYTIC FUNGI FROM Annona squamosa.</td>
<td>296</td>
</tr>
<tr>
<td>Prasetyawan Yunianto, Yudi Rusman, Agus Supriyono, Wahyudi Priyono Suwarso</td>
<td></td>
</tr>
<tr>
<td>CYTOTOXICITY COMPARATION OF ETHYL ACETATE EXTRACT AND THEIR ISOLATE FROM SKY III.2.1, AN ENDOPHYTIC FUNGI FROM SRIKAYA PLANTS (Annona squamosa)</td>
<td>304</td>
</tr>
<tr>
<td>Prasetyawan Yunianto, Fery Azis Wijaya, Nurhadi, Syafii Rosmalawati, Wahyudi Priyono Suwarso, Wahono Sumaryono</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>ISOLATION AND IDENTIFICATION OF A CHEMICAL COMPOUND IN n-HEXANE PHASE FROM THE METHANOL EXTRACT OF BINAHONG LEAF (<em>Anredera cordifolia</em> (Ten.) Steenis), BASELLACEAE</td>
<td></td>
</tr>
<tr>
<td>Ratna Djamil, Wahyudi PS, Wahono S, Wiwi Winarti, Evi Nurlativah</td>
<td>310</td>
</tr>
<tr>
<td>ANTIDIABETIC PROPERTIES OF <em>Andrographis paniculata</em> Nees AND <em>Eugenia polyantha</em> Wight LEAVES IN WISTAR RATS BY ORAL GLUCOSE TOLERANCE TEST</td>
<td></td>
</tr>
<tr>
<td>Ratna Megawati Widharna, Ferawati, Lucia Hendriati¹, Adrianta Surjadhana, Arijanto Jonosewojo, Elisabeth Catherina Widjajakusuma</td>
<td>318</td>
</tr>
<tr>
<td>THE EFFECT OF SEED TREATMENT ON GINGER PLANT PARASITIC NEMATODE AND SCALE INSECT POPULATION DEVELOPMENT IN THE FIELD</td>
<td></td>
</tr>
<tr>
<td>S. Retno Djiwanti, Rodiah Balfas</td>
<td>325</td>
</tr>
<tr>
<td>THE STUDY OF BAP AND IBA CONCENTRATION ON THE CALLUS FORMATION AND GROWTH OF <em>Artemisia annua</em> L. BY IN VITRO</td>
<td></td>
</tr>
<tr>
<td>Samanhudi</td>
<td>332</td>
</tr>
<tr>
<td>EFFECT OF BENZYL ADENIN AND THIDIAZURON ON SHOOT MULTIPLICATION OF ST. JOHN’S WORT (<em>Hypericum perforatum</em>) IN VITRO</td>
<td></td>
</tr>
<tr>
<td>Sitti Fatimah Syahid</td>
<td>341</td>
</tr>
<tr>
<td>DEVELOPMENT OF ACTIVE COMPOUNDS FROM ETHYL ACETATE EXTRACT OF RHIZOME <em>Acorus calamus</em> L AS ANTIDIABETIC</td>
<td></td>
</tr>
<tr>
<td>Sri Hartati, Rizna T. Dewi, A. Darmawan, Megawati</td>
<td>346</td>
</tr>
<tr>
<td>THE INFLUENCE OF LONG TERM BLOOD GLUCOSE-LOWERING JAMU ADMINISTRATION ON RAT KIDNEY</td>
<td></td>
</tr>
<tr>
<td>Sri Ningsih, Rilianawati, Agung Eru Wibowo</td>
<td>355</td>
</tr>
<tr>
<td>ANTIDIABETIC ACTIVITY OF MAHKOTA DEWA [<em>Phaleria macrocarpa</em> (Scheff.) Boerl.] STEM EXTRACTS AS AN INHIBITOR OF ALPHA-GLUCOSIDASE</td>
<td></td>
</tr>
<tr>
<td>Sri Sugiwati, Siswati Setiasih</td>
<td>365</td>
</tr>
<tr>
<td>ANTIDIABETIC AND ANTIOXIDANT ACTIVITIES FROM SEED EXTRACTS OF ROSELLA (<em>Hibiscus Sabdariffa</em> L.)</td>
<td></td>
</tr>
<tr>
<td>Sri Sugiwati, Hani Mulyani, Megawati, Minarti</td>
<td>374</td>
</tr>
</tbody>
</table>
UJI ANTIMIKROBA EKSTRAK ETANOL DAUN BINAHONG
(Anredera Cardifolia (Ten.) Steenis) DAN DALAM SEDIAAN SALEP
DENGAN BASIS HIDROKARBON DIBANDINGKAN DENGAN
BASIS ABSORPSI
Sudana Atmawidjaja, Ratna Djamil, Muhammad Yunus

A PHYTOCHEMICAL AND PHARMACOLOGICAL STUDY OF
Averrhoa bilimbi L. LEAVES
Suswini Kusmaningati, Afifah B. Sutjiatmo, Maria Immaculata Iwo

INSECTS ASSOCIATED WITH HORSEWOOD PLANTS
(Anis clausena)
Tri L. Mardiningsih, Dewi Sartiami

PLANT DAMAGING ORGANISMS OF JAVA TURMERIC
(Curcuma xanthorrhiza)
Tri L. Mardiningsih, Miftahurrohmah, Ripah Karyatiningsih,
D. Anser Sianturi, Desmawati, Shinta Ramadhani, Lilik Sri Utami

GROWTH AND YIELD OF Artemisia annua L. ON NITROGEN
FERTILIZER AND CYTOKININ
Usman Siswanto, Ruri Kustia, Entang Inoriah, Yuli Widiyastuti

ISOLATION AND IDENTIFICATION OF A CHEMICAL
COMPOUNDS IN n-HEXANE PHASE FROM THE METHANOL
EXTRACT OF KELADI TIKUS LEAF (Typhonium flagelliforme
(Lodd.) Blume, Araceae.
Yunahara Farida, Resti Caroline. A, Wanyudi Priyono S.,
Wahono Sumaryono

DETERMINATION OF EUGENOL IN VOLATILE OIL FROM CLOVE
LEAF AND FLOWER (Eugenia aromatica OK) BY TLC-
DENSITOMETRY
Zuhelmi Aziz, Ratna Djamil, Desi Rahmi Suciati

POTENCY OF SONGGA TREE (Strychnos lucida R Brown) AS
TRADITIONAL MEDICINAL PLANT : A CASE STUDY IN SUMBAWA
ISLAND- INDONESIA
Zuraida