



CERTIFICATE

No. 170/CERT.X/ISPST/2020

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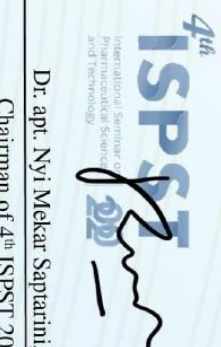
Fourth International Seminar on Pharmaceutical Science and Technology (4th ISPST 2020)

Bandung, October 27th - 28th, 2020



Prof. Dr. apt. Ayeng Diantini, M.Si

Dean Faculty of Pharmacy



Dr. apt. Nyi Mekar Saptarini, M.Si
Chairman of 4th ISPST 2020



SKP IAI ACCORDING TO DECREE NO: SKP/065/P/IAI/VI/2020



PHYSICAL PROPERTIES AND RATE OF DIFFUSION TRANSETHOSOME CURCUMIN USING TWEEN 60 AND SPAN 60 AS SURFACTANT

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Faculty of Pharmacy and Science, Universitas Muhammadiyah Prof. DR. HAMKA

Background and Objectives

Curcumin is a yellow compound in turmeric (*Curcuma longa* Linn), and has activities such as antimicrobial, anti-inflammatory, antioxidant, and anticancer. Curcumin has a low solubility in water, is metabolized first by causing its bioavailability to decrease. This problem can be overcome by formulating curcumin into the form of a transethosome delivery system. Surfactant is one of the transethosome component that affect the physical properties and penetration of vesicles. In this study, a combination of two surfactants (Tween 60 and Span 60) was used to see the effect of using a combination of two surfactant on physical properties and penetration of curcumin.

Conclusion

Diffusion rate testing results show that the use of a surfactant combination can increase the diffusion rate of curcumin, where there is a significant differential between each formula ($p < 0.05$).

Reference

Jantarat C. Bioavailability Enhancement Techniques of Herbal Medicine: A Case Example of Curcumin. *International Journal of Pharmacy and Pharmaceutical Sciences* 2012; 5 Suppl 1:493-500.
 Shajil J, Bajaj R. Transethosomes: A New Prospect for Enhanced Transdermal Delivery. *International Journal of Pharmaceutical Sciences and Research* 2018; 9 Suppl 7:2681-5

Method and Result

This study used a combination of tween 60 and span 60 with a concentration ratio 0:5 (F1), 1:1 (F2), 2:1 (F3) and 1:2 (F4) was used to form transethosome of curcumin. The evaluations performed on the transethosome include: testing the distribution of particle size, zeta potential and entrapment efficiency in the system. Evaluation continued with the determination of the diffusion rate. The transethosome system formed has a particle size of 167.9 ± 4.7 nm - 396 ± 3.7 nm with a potential zeta value (-) 49.54 ± 1.77 mV - (-) 59.05 ± 0.95 mV, polydispersion index 0.07% - 57.1% and entrapment efficiency of 83.76% - 93.75%. The cumulative amount of curcumin diffused through the millipore membrane of F1, F2, F3, and F4 for 8 hours (Table 3). The results of the cumulative amount of curcumin showed that the surfactant combination provides better penetration ability compared to a single surfactant.

Table 1: Formulation of Transethosome Curcumin

No.	Material	Formula (%)			
		F1	F2	F3	F4
1	Curcumin	1	1	1	1
2	Lechlilin	10	10	10	10
3	Tween 60	-	2.5	3.33	1.67
4	Span 60	5	2.5	1.67	3.33
5	Ethanol	30	30	30	30
6	Aquades sd	100	100	100	100

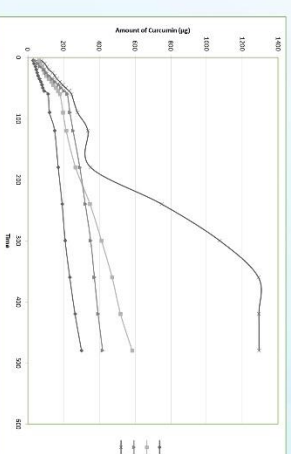


Fig 1: Profile of diffused cumulative amount of curcumin

10,5+3 SKP IAI



4th ISPST
International Seminar on
Pharmaceutical Science
and Technology 2020

THE 4th INTERNATIONAL SEMINAR ON PHARMACEUTICAL SCIENCE AND TECHNOLOGY

» About

The 4th ISPST 2020 is a biennial seminar which a continuation of the 3rd ISPST which has been held in 2018. This seminar gives the latest finding in the area related to pharmaceutical science and technology, poster discussion about current research trends, and establish new collaborations. ISPST is a forum for students, researchers, educators, observers, and practitioners from university, research institutions, industry, and general public to exchange ideas and latest information in the field of pharmaceutical science, technology, and engineering.

» Theme

“Future Prospective In The Transformation of Pharmaceutical Research Into Applicable Industry”



Due to Covid-19 Pandemic, the conference will be conducted online (Webinar).
Keynote and invited speakers will do live presentation.



Tuesday - Wednesday,
October 27th - 28th,
2020

» Important dates



» Seminar fees

Category	Conference Fees
Student	IDR 250,000
Academic/professional	IDR 500,000
International	\$ 50

» Please transfer to

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» Online registration

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» Collaboration journals

- Journal of Advanced Pharmacy Education and Research (Q3 scopus indexed)
- Journal of Pharmacy and Bioallied Sciences (Q3 scopus indexed)
- Indian Journal of Pharmaceutical Sciences (Q3 Scopus Indexed)
- Drug Invention Today (Q4 scopus indexed)
- Indonesian Journal of Pharmaceutical Science and Technology (S2 sinta indexed)

» In Collaboration with :



» Keynote speakers

- Prof. Tomoya Uehara (Chiba University, Japan)
Expertise on Radiopharmaceuticals.
- Dr. Hien Duong (The University of Sydney, Australia)
Expertise on Nanomaterial for Drug Delivery.

» Invited speakers

- Assoc. Prof. Pornchai Rojsitthisak, Ph.D. (Chulalongkorn University, Thailand) *
Expertise on Design, Chemical Kinetics and Pharmacokinetics.
- Mary Jho-Anne T. Corpuz, Ph.D. (Santo Tomas University, Phillipines)
Expertise on Cancer Chemopreventive Potentials of Natural Products in-vitro and in-vivo.
- Prof. Dr. Yahdiana Harahap, M.S., Apt. (University of Indonesia & President of Asian Federation for Pharmaceutical Science, Indonesia)
Expertise on Bioanalysis and DNA-Adduct Analysis.
- Dr. Nyi Mekar Saptarini M.Si., Apt. (Faculty of Pharmacy, Universitas Padjadjaran)
Expertise on Enzyme Isolation from Natural Resources
- Dr. Sriwidodo M.Si., Apt. (Faculty of Pharmacy, Universitas Padjadjaran)
Expertise on Protein Therapeutic hEGF Nanoparticle Drugs Delivery

* Under Confirmation



ABSTRACT BOOK

**THE 4TH INTERNATIONAL SEMINAR ON
PHARMACEUTICAL SCIENCE AND TECHNOLOGY**

**“FUTURE PROSPECTIVE IN THE TRANSFORMATION OF
PHARMACEUTICAL RESEARCH INTO APPLICABLE INDUSTRY”**

**4th
ISPST**

International Seminar on
Pharmaceutical Science
and Technology

2020

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4th ISPST

International Seminar on Pharmaceutical Science and Technology

**SCHEDULE OF 4th INTERNATIONAL SEMINAR ON
PHARMACEUTICAL SCIENCES AND TECHNOLOGY
27th -28th OCTOBER, 2020**

Western Indonesian Time	Tuesday, October 27th 2020 Event	Moderator
08.30-09.00	Opening speech Dean of Faculty of Pharmacy Chairwoman of the 4 th ISPST	
09.00-09.45	Keynote speaker: Prof. Tomoya Uehara (Japan)	Holis Abd Holik, Ph.D.
09.45-10.00	Poster presentation	
10.00-10.30	Invited speaker: Assoc. Prof. Pornchai Rojsitthisak, Ph.D (Thailand)	Dr. Aliya Nur Hasanah
10.30-11.00	Prof. Dr. Yahdiana Harahap (Indonesia)	
11.00-11.30	Dr. Nyi Mekar Saptarini (Indonesia)	
11.30-11.45	Discussion	
11.45-13.00	Parallel session (Split into 6 rooms)	

Western Indonesian Time	Wednesday, October 28th 2020 Event	Moderator
08.30-09.15	Keynote speaker: Dr. Hien Duong (Australia)	Dr. Ida Musfiroh
09.15-09.30	Poster presentation (1 poster/min)	
09.30-10.00	Mary Jho-Anne T. Corpuz, Ph.D. (Phillipines)	Dr. Iyan Sopyan
10.00-10.30	Raymond R. Tjandrawinata, Ph.D. (Indonesia)	
10.30-11.00	Dr. Sriwidodo (Indonesia)	
11.00-11.15	Discussion	
11.15-11.25	Poster presentation	
11.25-12.40	Parallel session (Split into 6 rooms)	
12.40-13.00	Closing ceremony: announcement of best poster & oral presenter	

**TIME SCHEDULE
(POSTER PRESENTATION)**

Day 1

Tuesday, 27th October 2020

09.45-10.00

NO	CODE	PRESENTER NAME	ABSTRACT TITLE
1	PP001	RISKA PRASETLAWATI	MOLECULAR DOCKING STUDY OF ANTHOCYANIDIN COMPOUNDS AGAINST EPIDERMAL GROWTH FACTOR RECEPTOR (EGFR) AS ANTI-LUNG CANCER
2	PP003	FITRIANTI DARUSMAN	PERCUTANEOUS DIFFUSION STUDY OF THE INCLUSION COMPLEX IBUPROFEN-B-CYCLODEXTRIN
3	PP007	IRMA ERIKA HERAWATI	ANTIOXIDANT ACTIVITY FROM ETHANOL EXTRACT AND FRACTION HEMIGRAPHIS COLORATA Hml. F. LEAVES USING DPPH
4	PP010	HESTI RIASARI, M.SI., APT	HISTOCHEMICAL INVESTIGATION OF <i>Archidendron dubautium</i> (Jack) Nielsen.) FROM LAMPUNG, SUMATERA, INDONESIA
5	PP012	EKY SYAHRONI	COMPUTATIONAL STUDY OF MAGAININ AS AN ANTIMICROBIAL PEPTIDES TARGETING SARS-COV-2 SPIKE PROTEIN FOR PROMISING COVID-19 DRUG CANDIDATES
6	PP013	TANISA MAGHFIRA SYARZA	STRUCTURAL ANALYSIS OF PHTHALOCYANINE ON HASA PROTEIN IN <i>SERRATIA MARCESCENS</i> AS A PHOTODYNAMIC ANTIMICROBIAL THERAPY CANDIDATE
7	PP014	MOHAMAD NURKAMAL FAUZAN	IMPLEMENTATION OF FUZZY LOGIC CONTROLLERS TO MAINTAIN WATER TEMPERATURE IN HYDROPONICS NFT FOR LOLLO VERDE LETUCE (<i>Lactuca sativa</i> L.)
8	PP017	DESAR MADE MALINI	ANTIDIABETIC EFFECTIVENESS OF ETHANOL EXTRACT OF <i>Archidendron Pauciflorum</i> FRUIT PEEL ON THE TESTICULAR STRUCTURE OF <i>Streptozotocin</i> -INDUCED DIABETIC RATS (<i>Rattus Norvegicus</i>)
9	PP018	IYEM SHAHIRA	ANTIHYPERTENSIVE ACTIVITY TEST OF MATOA LEAVES (<i>POMETIA PINNATA</i> J.R. & G. FORSTER) EXTRACT AND FRACTIONS IN MALE RATS INDUCED ANGIOTENSIN II WITH PARAMETERS RENIN AND ANGIOTENSIN II LEVELS
10	PP019	FITH KHAIRA NURSAL	ENHANCING THE LIPOPHILICITY OF SODIUM ASCORBYL PHOSPHATE THROUGH THE FORMATION OF MIXED SURFACTANTS

4th ISPST

International Seminar on Pharmaceutical Science and Technology

NO	CODE	PRESENTER NAME	ABSTRACT TITLE
11	PP020	DENY PURIYANI AZHARY	PREPARATION AND EVALUATION OF CO-PROCESSED EXCIPIENT HPMC-PREGELATINIZED CANNA STARCH FOR DIRECT COMPRESSION TABLET
12	PP021	KAMELIA AGUSTINI	QUANTITATIVE ANALYSIS OF DRUG PLANNING FOR PATIENTS BPJS HEALTH CARE ROAD WITH CONSUMPTION METHOD IN PHARMACEUTICAL INSTALLATION ONE OF THE REGIONAL GENERAL HOSPITALS IN BANDUNG DISTRICT
13	PP022	PRATIWI APRIDAMAYANTI	LENGTH OF FERMENTATION WITH TOTAL PHENOL CONTENT, TOTAL FLAVONOIDS CONTENT AND ANTIOXIDANT ACTIVITY IN THE MANUFACTURE OF FERMENTED <i>A. malaccensis</i> LEAF TEA
14	PP023	YENNI PUSPITA TANJUNG	FORMULATION AND PHYSICAL EVALUATION OF EDIBLE FILM PREPARATIONS FROM ETHANOL EXTRACT OF BETEL LEAVES (<i>Piper betle L</i>) FOR CANKER SORE DRUGS
15	PP024	TITA NOFLANTI	ANTIDIABETIC AND ANTIOXIDANT ACTIVITIES OF KLUTUK BANANA (<i>Musa balbisiana</i> Colla) PEEL SUBFRACTIONS

Day 2

Wednesday, 28th October 2020

Section 1 : 09.15-09.30

NO	CODE	PRESENTER NAME	ABSTRACT TITLE
1	PP025	TITA NOFLANTI	COMPARISON OF ANTIHYPERGLYCEMIC ACTIVITY OF DIFFERENT PARTS OF KLUTUK BANANA (<i>Musa balbisiana</i> Colla)
2	PP026	KIRIN PUSPADEWI	OPTIMIZATION OF <i>Lactobacillus plantarum</i> ACTIVITIES IN THE BIOSYNTHESIS OF LIPASE ENZYMES
3	PP027	RIANI TANJUNG	COST-EFFECTIVENESS ANALYSIS OF PROLANIS OF TYPE 2 DLABETIC PATIENTS IN THREE COMMUNITY HEALTH CENTERS IN BANDUNG, INDONESIA
4	PP035	MENTARI LUTHFIKA DEWI	EFFECTIVE INHIBITION OF MPRO SARS-COV-2 INFECTION BY RESVERATROL IN RED GRAPE SEEDS THROUGH MOLECULAR DOCKING APPROACHES

NO	CODE	PRESENTER NAME	ABSTRACT TITLE
5	PP037	ATHINA MARDATILLAH	THE EXPLORATION OF OTHER BIOACTIVE COMPOUNDS IN THE CHLOROFORM FRACTION OF SAPPAN WOODS (<i>Casalpinia sappan</i> L)
6	PP042	TAUFIK MUHAMMAD FAKIH	EVALUATION OF THE MOLECULAR INTERACTION FOR ANTITUBERCULOSIS AND B-CYCLODEXTRIN COMPLEXATION THROUGH MOLECULAR DOCKING STUDIES
7	PP043	KARTAWATI ALIPIN	CYTOTOXICITY EXTRACTS COMBINATION OF <i>Curcuma zamborhiza</i> AND <i>Azorella bititabi</i> FRUITS ON H ₂ La AND MDA-MB-231 CELL LINES
8	PP045	SHENDI SURYANA	INTERACTION BINDING STUDY OF SALMETEROL WITH FUNCTIONAL MONOMERS USING SEMI EMPIRICAL METHOD TO DESIGN AN IMPRINTED POLYMER OF SALMETEROL XINAFOATE
9	PP046	TINA ROSTINAWATI	OPTIMIZATION OF GENE ENCODING ANTI HER2 scFv [pD861-psIB] OVEREXPRESSION IN <i>Escherichia coli</i> BL21(DE3)
10	PP047	IDA MUSFIROH	MOLECULAR DYNAMIC SIMULATION OF ASLATIC ACID DERIVATIVES COMPLEX WITH INDUCIBLE NITRIC OXIDE SYTHASE ENZYME AS AN ANTI INFLAMMATORY
11	PP049	DAVID SARONO FUTRO	THE EFFECT OF VOLUME VARIATION OF SWEET ORANGE (<i>Citrus sinensis</i>) JUICE AND PEEL EXTRACT COMBINATION TOWARD THE CHARACTERISTIC AND ANTIBACTERIAL ACTIVITY OF NANOSILVER
12	PP051	HILDA APRILIA WISNUWARDHANI	THE EFFICACY OF CYCLODEXTRIN AS MOUTHRINSES ACTIVE COMPOUND AGAINST SARS-COV-2 MPRO IN PREVENTING COVID-19 INFECTION THROUGH MOLECULAR DOCKING STUDY
13	PP052	ANISA AMALLA	PHYSICAL PROPERTIES AND RATE OF DIFFUSION TRANSETHOSOME CURCUMIN USING COMBINATION OF TWEEN 60 AND SPAN 60 AS SURFACTANT
14	PP053	NINING	PHYSICAL CHARACTERIZATION AND RELEASE KINETICS OF METHACRYLIC-COATED NANO-PHYTOSOME ENCAPSULATING ALLICIN-RICH EXTRACT
15	PP054	RIMADANI PRATIWI	PAPER-BASED COLORIMETRIC DEVICE FOR DETECTING ALLOPURINOL IN TRADITIONAL MEDICINE BY ENZYMATIC REACTION

PHYSICAL PROPERTIES AND RATE OF DIFFUSION TRANSETHOSOME CURCUMIN USING COMBINATION OF TWEEN 60 AND SPAN 60 AS SURFACTANT

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ABSTRACT

Curcumin penetration can be increased by formulating it into the transethosome system. Surfactant is one of the transethosome component that affect the physical properties and penetration of vesicles. In this study a combination of two surfactants was used so that it could be seen the effect of using a combination of two surfactant on physical properties and penetration of curcumin. In this study used a combination of tween 60 and span 60 with a concentration ratio 0:5 (F1), 1:1 (F2), 2:1 (F3) and 1:2 (F4). In the system then an evaluation which included testing the distribution of particle size, zeta potential and entrapment efficiency. Evaluation continued with the determination of the diffusion rate in vitro. The transethosome system formed has a particle size of 167.9 ± 4.7 nm - 396 ± 3.7 nm with a potential zeta value (-) 49.54 ± 1.77 mV - (-) 59.05 ± 0.95 mV, polydispersion index 0.0% - 57.1% and entrapment efficiency of 83.76% - 93.75%. Diffusion rate testing results show the use of a combination of surfactant can increase the diffusion rat of curcumin.

Keywords: Curcumin, transethosome, surfactant, physical properties, diffusion rate.

References:

1. Abdulbaqi M.I., Darwis Y., Khan N.A., Assi R.A., and Arshad A. Khan., 2016, Ethosomal Nanocarriers : The Impact of Constituents and Formulation Techniques on Ethosomal Properties, In Vivo Studies, and Clinical Trials. *Internasional Journal of Medicine*, 11: 2279 - 2304.
2. Chen Z., Xia Y., Liao S., Huang Y., Li Y., He Y., Tong Z., Li B., 2014, Thermal Degradation Kinetics Study of Curcumin with Nonlinier Methods, *Food Chemistry*, 155: 81-86.
3. Das S., A. Chaudhury, 2011, Recent Advances in Lipid Nanoparticle Formulation with Solid Matrix for Oral Drug Delivery, *AAPS PharmSciTech*, 12(I): 62 -76.