Proceeding

The 1st International Conference on Pharmaceutics & Pharmaceutical Sciences

ICPPS 2014

Proceeding

The 1st International Conference on Pharmaceutics & Pharmaceutical Sciences

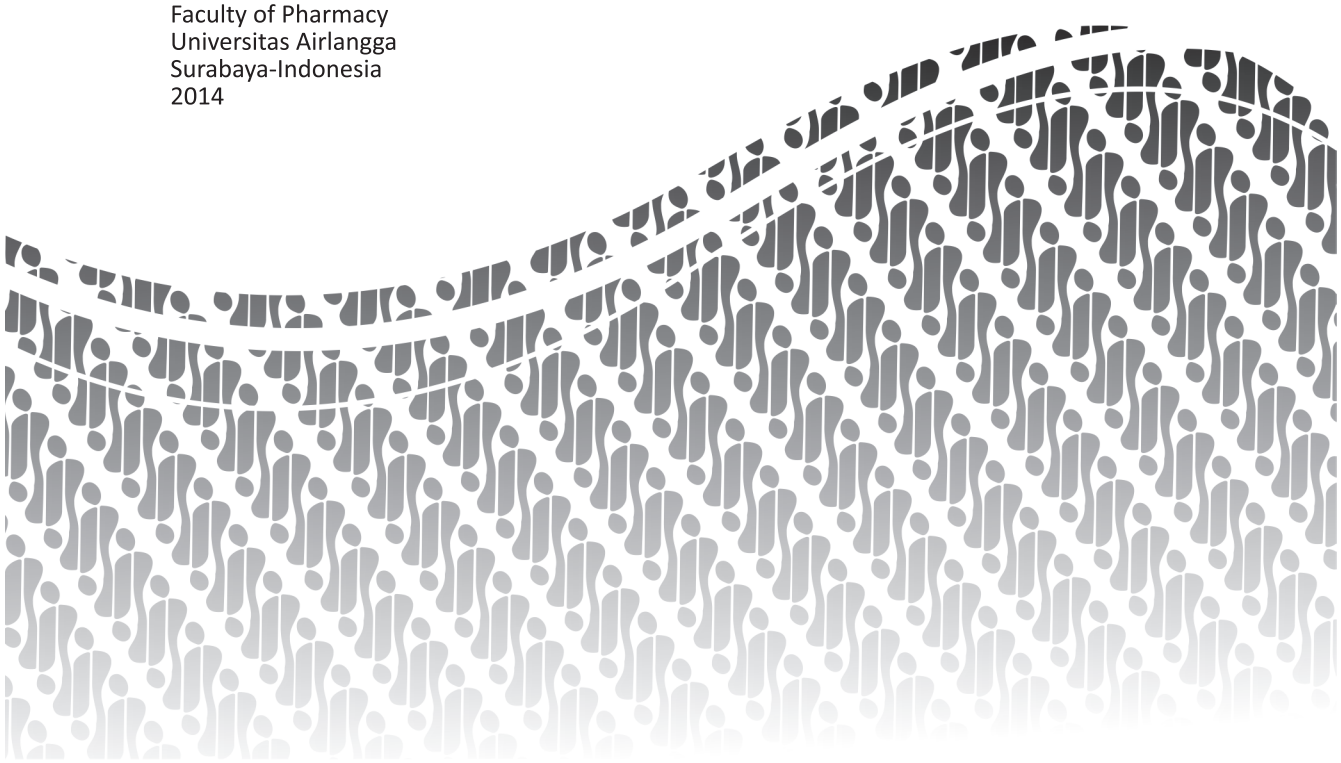
Drug Delivery Systems:
From Drug-Discovery, Pre-formulation, Formulation and Technological Approaches for Poorly Soluble Drugs and Protein

Organized by :
FACULTY OF PHARMACY
UNIVERSITAS AIRLANGGA SURABAYA
www.icpps2014.com
email : icppsinfo@gmail.com
Jl. Dharmawangsa Dalam, Surabaya 60286
Phone : +6231 5033710
Fax. : +6231 5020514

Proceeding

The 1st International Conference on Pharmaceutics & Pharmaceutical Sciences

Published and Organized by
Faculty of Pharmacy
Universitas Airlangga
Surabaya-Indonesia
2014



The 1st International Conference on Pharmaceutics & Pharmaceutical Sciences Proceedings

ISBN : 978-602-72333-0-0
(Letter of National ISBN Agency No. 4127/E.8/p/03.2015 Date 18 March 2015)

1st edition Proceeding
Published by:
Faculty of Pharmacy Universitas Airlangga
Surabaya, Indonesia

Address:
Kampus B Jl. Dharmawangsa Dalam
Surabaya 60286
Phone +62 31 5033710
Fax +62 31 5020514
Website: www.icpps2014.com or www.ff.unair.ac.id
Email: icppinfo@gmail.com

ISBN 978-602-72333-0-0

PREFACE From Chairman

It is our pleasure to present you the proceedings of The 1st International Conference on Pharmaceutics and Pharmaceutical Sciences (ICPPS) organized by The Faculty of Pharmacy Universitas Airlangga Surabaya Indonesia.

The proceeding was produced based on papers and posters presented at The 1st International Conference on Pharmaceutics and Pharmaceutical Sciences (ICPPS), held in Surabaya, Indonesia, 14-15 November 2014.

The proceeding clearly reflects broad interest, from the participants that coming from all around the world.

The papers presented were pharmaceutics and biopharmaceutics; requirements on how to evaluate molecules in discovery and their appropriateness for selection as potential candidate; their development in context of challenges and benefits, together with associated time and cost implications and also requirements to progress through pre-clinical and clinical.

In this an opportunity, I would like to express my appreciation to the editorial team of the proceeding who have been working hard to review manuscripts, and making the first edition of this proceeding be possible.

I would like also to thanks to all invited speakers and presenters who participated in The 1st International Conference on Pharmaceutics and Pharmaceutical Sciences (ICPPS) and your contribution to this proceeding.

Finally, I hope this proceeding will give contribution to the Pharmaceutics and Pharmaceutical Sciences research.

Chairman,

Dra. Esti Hendradi, MSI., Ph.D., Apt

COMMITTEE

Advisor : Dean of Faculty of Pharmacy Universitas Airlangga
Chairman : Dra. Esti Hendradi, M.Si., Ph.D, Apt.

Editor : Dr. Wouter LJ. Hinrichs (Netherlands)
Prof. Kozo Takayama (Japan)
Dr. Srinivas Mutalik (India)
Dr. Nuttakorn Baisaeng (Thailand)
Prof. Dr. Widji Soeratri, DEA (Indonesia)

Committee : Prof. Dr. Widji Soeratri, DEA, Apt.
Prof. Dr. Siswandono, MS., Apt.
Prof .Dr. Tutuk Budiati, MS., Apt.
Prof. Dr. rer.nat. Muhammad Yuwono, MS., Apt.
Drs. Hadi Poerwono, MSc.,Ph.D, Apt.
Drs. Marcellino Rudyanto, MSi., Ph.D, Apt.
Drs. Bambang Widjaja, M.Si, Apt.
Drs. Sugiyartono, MS, Apt.
Dra.Tutiek Purwanti, MSi, Apt.
Dra.Tristiana Erawati, MSi, Apt.
Dra.Retno Sari, MSc, Apt.
Dra.Dewi Isadiartuti, MSi, Apt.
Dra.Noorma Rosita, MSi, Apt.
Dr. Dwi Setyawan, SSi, MSi., Apt.
Dr. Riesta Primaharinastiti, SSi, MSi, Apt.
Dewi Melani Hariyadi, SSi, M.Phil., Ph.D, Apt.
Helmy Yusuf, SSi, MSc., Ph.D, Apt.
Dr. rer. nat. Maria Lucia Ardhani Dwi Lestari, SSi,MPharmSci., Apt.
Melanny Ika Sulistyowati, SFarm, M.Sc, Apt.
Febri Annuryanti, SFarm,M.Sc, Apt.
M. Faris Adrianto, MFarm, Apt.
Dini Retnowati, SFarm,Apt.
Abhimata P, SFarm, Apt.

TABLE of CONTENT

AUTHOR INDEX

EFFECT OF COMPARISON OF SURFACTANT AND COSURFACTANT W/O MICROEMULSION OVALBUMIN WITH SOYBEAN OIL TO PHYSICOCHEMICAL CHARACTERIZATION

(w/o Microemulsion with Surfactant Span 80- Tween 80 : Cosurfactant Ethanol 96% = 5:1; 6:1 and 7:1)

Farida Mutiara Sari, Faculty of Pharmacy, Universitas Airlangga, Surabaya, Indonesia; **Riesta Primaharinastiti,** Faculty of Pharmacy, Universitas Airlangga, Surabaya, Indonesia; **Esti Hendradi,** Faculty of Pharmacy, Universitas Airlangga, Surabaya, Indonesia, esti_hendradi@yahoo.com

INTRODUCTION

Microemulsions are macroscopically isotropic mixtures of at least a hydrophilic, a hydrophobic and an amphiphilic component. Their thermodynamic stability and their nanostructure are two important characteristics that distinguish them from ordinary emulsions which are thermodynamically unstable1). Microemulsions can protect drug from degradation2). Ovalbumin is protein carrier that used as adjuvant for vaccine. Mean while, many topical vaccines developed to induced imunne function response3). Microemulsion expected to protect ovalbumin from degradation. In this study, microemulsions made from ovalbumin, aquabidestillata Span 80, Tween 80 as surfactant and ethanol as cosurfactant (surfactant : cosurfactant = 5:1; 6:1 and 7:1). The aim of this study was to know the influence of curfactant and cosurfactant comparison to microemulsion characteristics. Evaluation of this study included organoleptic, pH, surface tention, particle size distribution and drug entrapment.

MATERIALS AND METHODS

Material used in this study are ovalbumin pharmaceutical grade (Sigma-Aldrich), soy bean oil food grade (Moi Foods), Span 80 cosmetical grade (Croda), Tween 80 cosmetical grade (Croda), ethanol pro analysis (MERCK) dan aquabidestilata (PT. Widatra Bakti), Coomassie Billiant Blue (Sigma-Aldrich).

Microemulsion Preparation

Soy bean oil, Span 80, Tween 80 and ethanol 96% mixed in beaker glass with magnetic stirrer at 1000 rpm for 15 minutes then aquabidestilata added and stired at 1500 rpm for 15 minutes. Ovalbumin dissolved in microemulsion and stired at 1500 rpm for 60 minutes.

Evaluation of Microemulsion

Organoleptic

Organoleptic evaluation determined visually including color, odor, and consistension.

pH

pH evaluation determined by Eutech Instument pH700 pH/ mV/ ºC/ ºF meter. All measurements were carried out in triplicate

Table 5. Formula of the microemulsion.

Material	Concentration (% b/b)		
	Formula I	Formula II	Formula III
Ovalbumin	1	1	1
Soy bean oil	31	31	31
Span 80	37.38	38.45	39.25
Tween 80	12.62	12.98	13.25
Ethanol 96%	10	8.57	7.5
Aquabidestilata	8	8	8

Surface Tension

Surface tension evaluation determined by Du Noüy tensiometer.

Droplet Size Distribution

Droplet size distribution evaluation determined by Delsa™ Nano Submicron Particle size and Zeta Potentialt Dynemic Light Scattering. Sample observed in 165º angle and temperature 25ºC.

Drug Entrapment

The loaded microemulsion centifuged in 2500 rpm for 15 minutes. 50 µl fltrate added with aquabidestillata up to 50,0 ml in volumettic flask. 50 µl aliquotes added with 2,5 ml Coomassie Brilliant Blue. Absorbance checked in wave length 620 nm. Ovalbumin absorbance was absrbance difference between loaded microemulsion and unloaded microemulsion.

Statistics

All of the results were analyzed by statistic using one way analysis of variance with degree of believed 95% (α = 0,05) and followed by HSD (Honestly Significant Difference). Independent sample t-test used to know the difference between loaded and unloaded microemulsion.

RESULTS AND DISCUSSION

The results of organoleptics evaluation showed that microemulsions have transparent yellow colour and high fluidity for all formulas.

The data showed the mean of pH for unloaded and loaded of formula I were 6.89±5.77x10-3 and 6.95±0.036, formula II were 6.87±0.010 and 6.90±5.77x10-3 and formula III were 6.76±0.026 and 6,89±5.77x10-3. This showed there was no significant difference between formulas but there is difference between loaded and unloaded microemulsions.

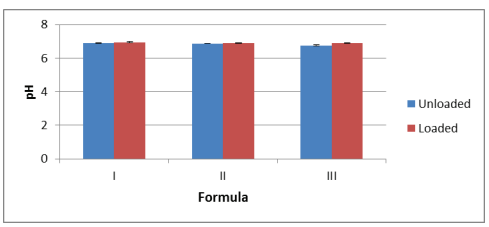


Figure 1. Histogram of microemulsions pH

The results of surface tension studies showed that the mean for unloaded and loaded of formula I were 0.3705±0.0000 and 0.3297±0.0051 Nm-2, formula II were 0.3562±0.0045 and 0.3397±0.0015 Nm-2 and formula III were 0,3900±0,0000 and 0.3377±0.00351 Nm-2. This result sowed there is difference between formulas for loaded and unloaded microemulsion. Surface tension value decresed after microemulsion loaded with ovalbumin this can be caused ovalbumin had a function as emulsifying agent at the interface of the microemulsion4).

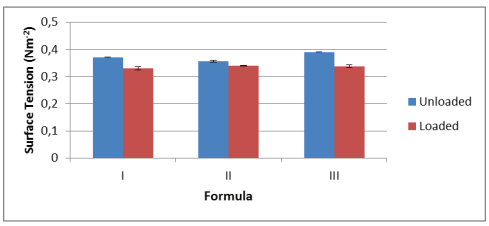


Figure 2. Histogram of microemulsion surface tension

The droplet size distributon for unloaded and loaded of formula I were 30.7±4.01 and 0.26±0.10 mn, formula II were 27.6±2.97 and 23.8±0,26 nm and formula III were27.1±1.70 and 25.0±1.14 nm. This result showed that there was no significant difference between unloaded microemulsion and there was difference bertween loaded microemulsion. The loaded and unloaded microemulsion had no significant difference result.

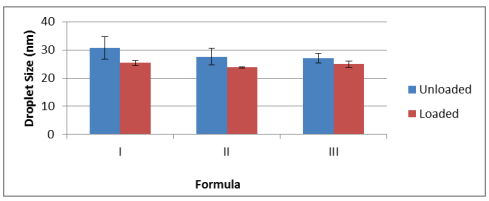


Figure 3. Histogram of microemulsion droplet size

Drug entrapment study showed the mean value of formula I was 25.77±10.12 %, formula II was 46.01±10.12 % and formula III was 29.14± 5.84 %. This result showed there was no significant difference between formulas made.

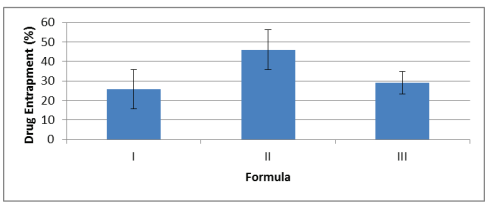


Figure 4 Histogram of microemulsion drug entrapment

CONCLUSION

The best formula can not define because in comparison of surfactant and cosurfactant in microemulsion showed no significant difference in physicochemical characteristic of microemulsion.

REFERENCES

1. Moghimipour E, Salimi A, Eftekhari S (2013). Design and Characterization of Microemulsion Systems for Naproxen. Advanced Pharmaceutical Bulletin 3(1), p. 63-71
2. Pathan M, Zikriya A, Quazi A, (2012). Mi croemulsion: As Excellent Drug Delivery System. IJPRS V-1, I-3, p. 199-210
3. Gupta PN, Singh P, Mirsha V, Jain S, Dubey PK, Vyas SP (2004). Topical Immu nization: Mechanistic Insight and Novel Delivery Systems. Indian Biotechnol (3), January 2004, pp. 9-21
4. Kantarci G, Ozguney I, Karasulu HY, Arzik S and Guneri T (2007). Comparison of Different Water/Oil Microemulsions Containing Diclofenac Sodium: Prepara tion, Characterization, Release Rate, and Skin Irritation Studies. AAPS PharmSci Tech., 8 (4) Article 91