



APPENDICES

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

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APPENDIX A

Chemical and physical properties of compounds used in this study

1. Sorbitan monooleate, poly (oxy-1, 2-ethanediyl)

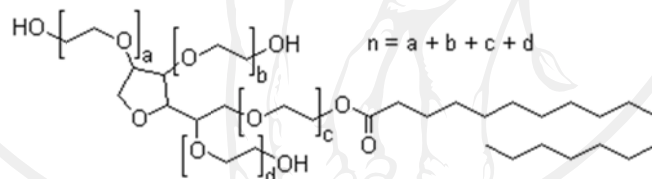
(<http://www.lookchem.com/cas-900/9005-67-8.html>)

Name : Sorbitan monooleate, poly (oxy-1, 2-ethanediyl)

Chemical name: Sorbitan monooleate

Synonyms : Sorbitan, monostearate, polyoxyethylene derivs. (8CI);
Ahco DFS 100; Tween 18:0; Tween 60; Tween 61

Molecular Structure:



Molecular Weight :1311.65

Density :1.095~1.105

Boiling Point :> 100 C

Flash Point :>230 °F

Solubility :Soluble

Particular :particular

Physical appearance :white powder

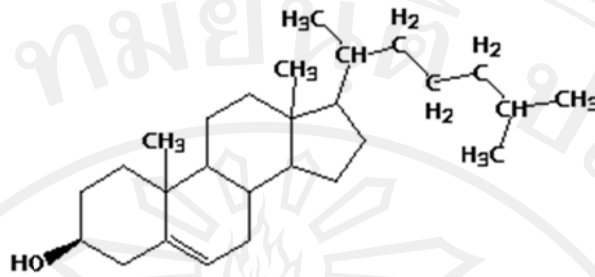
2. Cholesterol (<http://www.serva.de>)

Name : Cholesterol (C₂₇H₄₆O)

Chemical name: Cholesterol

Synonyms : 3β-Hydroxy-5-cholestene, 5-Cholesten-3β-ol

Molecular Structure:



Molecular Weight	: 386.65
Density	: 1.067 g/mL at 25 °C
Boiling Point	: 360 °C
Melting Point	: 147-149 °C
Solubility	: Soluble
Physical appearance	: white powder
Storage temperature	: -20°C

APPENDIX B

1. Preparation of the reagent solutions for SDS-PAGE assay (Laemmli, 1970)

1.1 Reagent solution

1. Acrylamide stock solutions (acrylamide 30%w/v. Bis 0.8%w/v)

Acrylamide	60	g
N-N'Methylenebisacrylamide (Bis)	1.6	g
Deionized water	200	ml

(Storage temperature : 4°C and not being contacted to light)

2. 1.5 M Tris Cl

Tris	36.3	g
Deionized water	200	ml

Adjust to pH 8.8 by 4 N HCl

3. 0.5 M TrisCl

Tris	3.0	g
Deionized water	50	ml

Adjust to pH 6.8 by 4 N HCl

4. 10% SDS solution

Sodium dodecylsulfate (SDS)	5.0	g
Deionized water	50	ml

5. 10% APS

Ammonium persulfate (APS)	0.1	g
Deionized water	1.0	ml

(Prepared freshly before use only)

1.2 Preparation of gel

Table B1 Preparation of the separating gel and stacking gel

chemical	% of separating gel				stacking gel, 4%
	7.5	10	12.5	15	
Acrylamide stock solution	7.5ml	10ml	12.5ml	15ml	0.67ml
1.5 M Tris Cl	7.5ml	7.5ml	7.5ml	7.5ml	
0.5 M Tris Cl					1.25ml
10% SDS	0.3ml	0.3ml	0.3ml	0.3ml	0.05ml
Deionized water	14.6ml	12.1ml	9.6ml	7.1ml	3.0ml
10% APS	150 μ l	150 μ l	150 μ l	150 μ l	25 μ l
TEMED	10 μ l	10 μ l	10 μ l	10 μ l	2.5 μ l
Final volume	30ml	30ml	30ml	30ml	5ml

1.3 Preparation of 2X sample treatment buffer

0.5 M Tris Cl 2.5 ml

10% SDS 4.0 ml

Glycerol 2.0 ml

2-mercaptoethanol 0.2 ml

(or Dithiothreitol (DTT)) 0.3 g

Bromphenol Blue 0.2 mg

Deionized water 10.0 ml (Kept at temperature-20°C)

1.4 Preparation of 10X electrode buffer

Tris 30.28 g

Glycine 144.13 g

SDS 10 g

Deionized water 1,000 ml (Diluted 10 times before used)

1.5 Preparation of coomassie stain solution

Coomassie Blue R-250	0.5	g
Methanol	800	ml
Glacial acetic acid (99%)	140	ml
Deionized water	2,000	mlr

1.6 Preparation of destaining solution

Methanol	50	ml
Glacial acetic acid (99%)	140	ml
Deionized water	1,000	ml

1.7 Evaluation of molecular weight by the SDS-PAGE method (Procedure)

Extraction of protein from the 5 breeds by bringing the sample which the is extracted protein to calculate and find pure molecular enzyme weight by finding the value from the moving distance of protein per the distance of color movement as an indicator (Rf), Then compare with the Rf of standard protein that the weight is known exactly (precision plus standard, dual colors: 10, 20, 25, 37, 50, 75, 100, 150 and 250 kDa).

APPENDIX C

Friedman Test

Analysis of Variance Friedman.

This method compares several related samples and can be used as a non-parametric alternative to the two ways ANOVA. The power of this method is low with small samples but it is the best method for non-parametric two way analysis of variance with sample sizes above five.

The analysis and interpretation of Friedman's test was base on the following equations:

$$\chi^2_r = T = \frac{12}{bt(t+1)} * (R_1^2 + R_2^2 + R_3^2 + R_4^2) - 3b(t+1)$$

b= number of respondents t = number of samples

R₁= total of rank for sample1 t-1 = df.

Differences of satisfactory level for multiple samples is calculated by LSD for

Rank data

$$\text{LSD rank} = Z_{\alpha/2} \sqrt{\frac{bt(t+1)}{6}}$$

$Z_{\alpha/2} = 1.96$ at confidential level %95

APPENDIX D

Survey Sheet

Consumer Acceptance Study

To: Respondents

Subject: Consumer acceptance study on anti-wrinkle serum containing niosomes entrapped with sericin and oil of Thai native silkworms

Notification: This survey sheet is used to study the consumer acceptance on anti-wrinkle serum containing niosomes entrapped with sericin and oil of Thai native silkworms which is a part of the research of Miss Supanida Winitchai. Your cooperation in completing the survey sheet is appreciated. All of your information filled in this sheet will be useful for the research. Your response will not cause any problems to you.

Explanation: The development of anti-wrinkle serum containing niosomes entrapped with sericin and oil of Thai native silkworms in this project is aimed to promote the value of Thai local silkworms. The important ingredients are silkworm oil and silk cocoon amino acids that are good nutrients for repairing aging skin. With nanotechnology, the ingredients which are entrapped in niosomes formula are added to the anti-wrinkle serum in order to expedite its efficiency. The developed anti-wrinkle serum is enabling to get rid of face wrinkles efficiently, to help firm up and smoothen skin. Besides, it naturally whitens the skin, nourishes skin moisture, and improves skin elasticity.

Sample Product: The sample product of anti-wrinkle serum containing niosomes entrapped with sericin and oil of Thai native silkworms

Instruction: Apply the serum to your face thoroughly after washing every morning and night. Rub your face gently until the serum is absorbed into your face skin. Use daily for 14 days. Answer the questions on the survey sheet.

Note: - The sample product should be kept at room temperature not over 35°C. Avoid keeping it in sunlight and high temperature.

- Stop using in all cases of irritation.

Thank you for your response to all of the questions

The researcher

Direction: Put ✓ in () for the answers that are right to your thought.

Part I: Personal information of the volunteer

1. Age

- () 30-40 years old () 41-50 years old
 () 51-60 years old () more than 61 years old

2. The highest obtained academic degree

- () Lower than high-school () Primary high-school
 () Secondary high-school/vocational school
 () College diploma () Bachelor degree
 () Master degree or higher degree

3. Occupation

- () School student () Government or state enterprise officer
 () Employee of private organization () College student
 () Professional employment () Business owner
 () Housewife () Other, please specify.....

4. Monthly income

- () Less than 10,000 baht () 10,001-20,000 baht
 () 20,001-30,000 baht () 30,001-40,000 baht
 () 40,001-50,000 baht () Over 50,000 baht

5. Type of frequently used anti-wrinkle moisturizing products (Choose only one answer.)

- () Cream () Gel
 () Lotion () Cream gel
 () Other, Please specify.....

Part II: Consumer acceptance study on the anti-wrinkle serum containing niosomes entrapped with sericin and oil of Thai native silkworms - What do you think about the product, after you have used the product for 1 month? Please answer the following questions.

6. What do you think about this product in comparing to your frequently used anti-wrinkle moisturizing products given in item 5.

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7. What do you think about this product comparing to other products in the market?

This product is better This product is as good as others

This product is not as good as others

8. Do you accept this product?

Yes. (go to item 10)

No. (continue on item 9)

9. Please give the reasons for not accepting the product.

Slow absorption to skin

Greasy residue on skin after applying

Strong smell / less fragrance

unsatisfactory color

Short-term moisturizing

unsatisfactory serum texture

Unnoticeable whitening effect

Unnoticeable wrinkle reduction

Irritation, i.e. rash, irritating

Other, Please specify.....

10. Please evaluate the product and fill the preference survey table according to your opinion on the product. (Mark ✓ on the selected preference level)

Description	dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither nor dislike	Like slightly	Like moderated	Like very much	like Extremely
1. Overall liking									
2. Color									
3. Odor									
4. Distribution to face skin									
5. Absorbency to skin									
6. Skin moisture after use									
7. Softness and smoothness of skin after use									
8. Reduction of deep wrinkles									

11. How are you satisfied with the characteristics of the sample product after the trial use? (Mark ✓ in the field right to your opinion)

Characteristics	Satisfaction level				
	Much too neck	Slight too weak	Just-right	Slightly too strong	Much too strong
1. Serum color					
2. Serum smell					
3. Effect on wrinkles reduction					
4. Softness of skin after use					
5. Firm and smoothness of skin					
6. Effect on skin whitening					

12. Will you buy the product when it is launched in the market?

() Yes. (go to item 14)

() No. (continue on item 13)

13. The reason for not buying the product.

- Greasy residue after applying Appearance of the serum
 Short-term moisturizing Slow absorption to skin
 Strong smell / less fragrance Unsatisfactory color
 Unnoticeable whitening effect to skin
 Unnoticeable effect on wrinkle reduction
 Do not like texture serum
 Irritation, i.e. rash, irritating Other, please specify.....

14. Appropriate selling price for 50 gram (Eucerin 1,790 baht, Liposome serum 2,500 baht*)

- Lower than the market Similar to the market
 Higher than the market

15. Other suggestion (if any)

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Remark: * Price is according to the retailing price at Siam Paragon in Bangkok in January 2010.

แบบสอบถาม
การทดสอบการยอมรับของผู้บริโภค

เรียน ผู้ตอบแบบสอบถาม

เรื่อง การทดสอบการยอมรับของผู้บริโภคต่อผลิตภัณฑ์เซรั่มลดริ้วรอยและชะลอความแก่ที่มีส่วนผสมของ
นีโอโซมจากโปรตีนไหมพันธุไทยพื้นเมือง

คำชี้แจง แบบสอบถามชุดนี้ เป็นการทดสอบการยอมรับของผู้บริโภค ที่มีต่อผลิตภัณฑ์เซรั่มลดริ้วรอย ที่มี
ส่วนผสมของนีโอโซมจากโปรตีนไหมพันธุไทยพื้นเมือง เพื่อประกอบการทำวิทยานิพนธ์ของ น.ส.สุพินดา
วินิจัย นิสิตปริญญาเอก สาขาวิชาเกษตรศาสตร์ คณะเกษตรศาสตร์ มหาวิทยาลัยเชียงใหม่ ดังนั้นจึงใคร่ขอความ
ร่วมมือจากท่านกรุณาตอบแบบสอบถามให้สมบูรณ์ ข้อมูลทั้งหมดที่ท่านตอบมา จะเป็นประโยชน์อย่างยิ่งสำหรับ
งานวิจัยนี้ และจะไม่มีผลกระทบใดๆ ต่อท่านทั้งสิ้น

คำอธิบาย การพัฒนาผลิตภัณฑ์ผลิตภัณฑ์เซรั่มลดริ้วรอยและชะลอความแก่ที่มีส่วนผสมของนีโอโซมจากโปรตีน
ไหมพันธุไทยพื้นเมือง เป็นงานวิจัยเพื่อใช้เป็นแนวทางในการเพิ่มมูลค่าของไหมสายพันธุไทย ซึ่งเป็น
ส่วนประกอบที่สำคัญคือ โปรตีนที่อยู่ในรังไหม และกรดไขมันในดักแด้ไหม โดยการนำนวัตกรรมด้านนาโน
เทคโนโลยี มาเพื่อให้สามารถนำส่งผ่านสารสำคัญประเภท โปรตีนและกรดไขมันที่ถูกกักเก็บในถุงขนาดนาโนใน
รูปแบบนีโอโซม คืออนุภาคขนาดเล็กไปช่วยเพิ่มประสิทธิภาพให้ตรงเป้าหมายและเฉพาะเจาะจงยิ่งขึ้น **ตัวอย่างที่**
แจกให้: ตัวอย่างผลิตภัณฑ์เซรั่มลดริ้วรอยและชะลอความแก่ที่มีส่วนผสมของนีโอโซมจากโปรตีนไหมพันธุไทย
พื้นเมือง

คำแนะนำในการใช้: ทดสอบตัวอย่างทุกวันหลังล้างหน้าเช้าและเย็น บีบออกแล้วทาบนผิวหนัง โดยใช้เซรั่มทา
ผิวหนัง เป็นเวลานาน 4 สัปดาห์ แล้วตอบคำถามในแบบสอบถาม

หมายเหตุ

- กรุณาเก็บตัวอย่างที่อุณหภูมิห้อง ไม่ควรเก็บไว้กลางแดด
- หากมีอาการระคายเคืองใด ๆ กรุณาหยุดใช้ทันที
- ห้ามใช้ร่วมกับผลิตภัณฑ์อื่น

ขอขอบพระคุณที่ท่านให้ความร่วมมือในการตอบแบบสอบถาม

ผู้วิจัย

คำแนะนำ : กรุณาใส่เครื่องหมาย ✓ ลงในวงเล็บ () หน้าคำตอบที่เห็นว่าเหมาะสมและตรงตามความคิดเห็นของท่านมากที่สุด

ส่วนที่ 1 : ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

1. อายุ

() 30 – 40 ปี

() 41 – 50 ปี

() 51 – 60 ปี

() 61 ขึ้นไป

2. การศึกษาสูงสุดที่ได้รับ

() ต่ำกว่ามัธยมศึกษา

() มัธยมศึกษา-ปวช

() อนุปริญญา / ปวส.-ปริญญาตรี

() ปริญญาโท

() ปริญญาเอก

3. อาชีพ

() นักเรียน/นักศึกษา

() ข้าราชการ / รัฐวิสาหกิจ

() พนักงานบริษัทเอกชน

() ธุรกิจส่วนตัว

() แม่บ้าน

() อื่น ๆ โปรดระบุ

4. รายได้ต่อเดือน

() ไม่เกิน 10,000 บาท

() 10,001-20,000 บาท

() 20,001-30,000 บาท

() 30,001-40,000 บาท

() 40,001-50,000 บาท

() 50,001-60,000 บาท

() มากกว่า 60,000 บาท

5. ผลิตภัณฑ์ลบลีออนวีรรอยที่ท่านใช้บ่อยที่สุด มีรูปแบบใด (ตอบได้เพียง 1 ข้อ)

() เนื้อครีม

() เนื้อเจล

() เนื้อโลชั่น

() เนื้อครีมเจล

() อื่นๆ

ส่วนที่ 2 : ข้อมูลเกี่ยวกับการทดสอบผลิตภัณฑ์เซรั่มลบลีออนวีรรอยผสมของนีโอโซมที่กักเก็บเซริซินและน้ำมันจากไหมพันรัฐไทยพื้นเมือง

ภายหลังที่ท่านได้ทดลองใช้ผลิตภัณฑ์นี้ เป็นเวลา 1 เดือน ท่านมีความคิดเห็นอย่างไรเกี่ยวกับผลิตภัณฑ์ กรุณาตอบคำถามดังนี้

6. ท่านมีความคิดเห็นเกี่ยวกับผลิตภัณฑ์นี้อย่างไร เมื่อเปรียบเทียบกับผลิตภัณฑ์เซรั่มลบลีออนวีรรอยและชะลอความแก่ที่ท่านใช้บ่อยที่สุดในข้อ 5

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11. ท่านมีความพึงพอใจอย่างไรเกี่ยวกับคุณสมบัติที่มีในผลิตภัณฑ์เซรั่มลดริ้วรอยและชะลอความแก่ภายหลังการทดลองใช้ (กรุณาให้เครื่องหมาย ✓ ในช่องว่างให้ตรงกับความคิดเห็นของท่าน)

คุณสมบัติ	ระดับความพึงพอใจ				
	น้อยที่สุด	น้อยมาก	ปานกลาง	มาก	มากที่สุด
1. สี					
2. กลิ่น					
3. ความสามารถลดริ้วรอย					
4. ความชุ่มชื้นหลังใช้					
5. ขกกระชับและเนียนผิว					
6. ความขาวขึ้นของผิว					

12. หากผลิตภัณฑ์มีวางจำหน่ายในท้องตลาดท่านจะซื้อหรือไม่

() ซื้อ (ข้ามไปตอบข้อ 14)

() ไม่ซื้อ (ตอบข้อ 13 ต่อ)

13. เหตุผลที่ไม่ซื้อผลิตภัณฑ์

() ใช้แล้วเกิดอาการแพ้ เช่น เกิดผื่นแดง, แสบและคัน

() เหนียวเหนอะหนะมากไป

() ลักษณะของเนื้อเซรั่ม

() ใช้แล้วผิวแห้ง

() อื่น ๆ โปรดระบุ

14. ราคาที่เหมาะสมในการจัดจำหน่ายผลิตภัณฑ์ต่อ 50 กรัม (ยูเซอร์รีน ราคา 950 บาท *)

() น้อยกว่าผลิตภัณฑ์ตลาด

() เท่ากับผลิตภัณฑ์ตลาด

() มากกว่าผลิตภัณฑ์ตลาด

15. ข้อเสนอแนะอื่นๆ (ถ้ามี)

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หมายเหตุ * ราคาสินค้าสำรวจที่ห้างสรรพสินค้าสาขาเซ็นทรัลลาดพร้าว เมื่อ พฤศจิกายน 2552

ขอบคุณค่ะ

Questionnaire Quality Assessment Method.

1. On conducting the research, the surveying tools which are questionnaires and computer were created for use in data surveying and analysis, researcher creates the questionnaires by own self derived from the concept as a result of the study from the documents and research work relating to the anti-wrinkle cosmetics by dividing the questionnaire into 2 steps which were data on consumers who give their replies in responding to the general questionnaire and those who give replies specifically on the anti-wrinkle products that mix with niosomes entrapped with oil and sericin.

2. The instrument test begins to run from the creation of the questionnaire by making presentation to sensory evolution test advisor to determine the accuracy of the contents and the questionnaire will then be improved at the advices of the Advisor. Thereafter, the questionnaires are brought to 3 persons well-versed in the specific field which are the experts engaged in cosmetic business and consumer test advisor and cosmetic analyst to determine the accuracy of the contents for more perfection. Thereafter, the questionnaire reliability test is conducted with a sampling group of the population and the result of the test is always steadily achieved with the Reliability value of more than 0.6. Such result signifies that this set of questionnaire is reliable and worthwhile using for the study. Thereafter, the questionnaire is conducted with the real sampling group which is the group of population of female sex aged 25 and over by distributing random sampling questionnaires according to the occupational group by relying on the principle of probability of 30 sets for home use test

distributions for 4 weeks and, next, result of the research will be improved in order to find the errors where the reliability coefficient value level of which must be equal to 0.97 in order to obtain the clarity before the questionnaires are used for further inquiries

3. After good questionnaires are achieved, 300 sets of them will be distributed to target sampling group being female sex aged 30 and over residing in Bangkok and its perimeter together with distributing serum products. During the period of conducting the research from December to January, questionnaires are distributed directly to the persons designated to be the target group using the products for a period of 4 weeks and, thereafter, the questionnaires are gathered from the target group by own self for data processing. In such data processing, the data from all sets of the questionnaires must be gathered in order that the accuracy can be reviewed; the replies sorted out and classified in groups including reply coding, printing and feeding data for processing by computer by using SPSS program for statistical data analysis where the percentage and variable mean are achieved and then, from that point, conclusion is made and relevant report written. (Chompreeda P. and Rimkhiri H., 2002).

Product Test Volunteer Selection Basis.

1. Person of good health: volunteer is required to fill data in health data form. She must be a person of good health; not being sick of preventable disease; her annual checkups must be regularly conducted; she must not be hooked to addictive substances; such as, alcoholic beverages and smoking.
2. The ages from 25 to 65 years; female sex; living in the Bangkok areas and

its perimeters and able to travel for taking the tests.

3. After a good health volunteer has been recruited, appointment shall be made; test timetables prepared and the products given to her.

4. Things ought to know and do while skin tests are conducted: By beginning with the designation of the point or the area to be measured which is the facial area both on the left and right sides by fixing the certain position. The volunteer must thoroughly clean her face with the prescribed cleaning substance in order to make her face cleaned. Next, her body shall suitably be adjusted in the temperature-controlled room of 20 ± 2 degree celsius under the moisture of $50\pm 5\%$ for 10 minutes. Applying the product and then measuring the initial skin quality (to) and, afterwards, the product shall be brought back home for use. Following the due date of two week periods, the volunteer shall return to get her skin condition measured as original practiced.

APPENDIX E

The estimated cost of niosomes entrapped with None Ruesee strain silkworm extracts containing sericin and oil

Table E1 Estimated cost calculation of oil from the silkworm pupa

Raw material	Unit price /kg.	Unit price /grams	Quantity (grams/1000g)	Raw material costs (Baht)
Oil silkworm	120	0.12	25	3
D.I. water	65	0.065	4,000	260
Filter paper	430	4.30	6	25.8
GF/A filter paper	14,000/30m.	466.7	2 ม.	933.4
Power (volt)	-	2.5 unit	65 ชม.	162.5
				1,384.7
Costs/1000 g of initiative raw material	35.2% of initiative raw material			
Costs/1000 g of product	$(1000 * 1772.2) / 352.0 = \underline{3,933.8}$			

Table E2 Estimated cost calculation of sericin from silk cocoon

Raw material	Unit price /kg.	Unit price /grams	Quantity (grams/1000g)	Raw material costs (Baht)
Sericin	3,933.8	3.9338	5	19.7
D.I. Water	65	0.065	1700	110.5
Cholesterol	5,500/100g	275	5	1,375
Chloroform	800/2,500ml	0.32	1000	320
Tween 61	2,806/500g	5.612	8	44.9
Power (volt)	-	2.5 unit	115 hr.	287.5
				2,157.6
Costs/1000 g Of the initiative raw material	4.91% of initiative raw material			
Costs/1000 g of product	$(1,000 * 2157.6) / 49.1 = \underline{43,942.9}$			

Table E3 Costs of the serum with base compositions

Raw material used	Quantity used (g/1000 g)	Cost per unit (Baht/1000 g)	Cost (Baht)
Water	679	50	33.95
Sodium EDTA	0.5	250	0.125
Glycerin	30	75	2.25
Carbopo®Ultrez21 polymer	2	1,000	2
Triethanolamine	5	150	0.75
C14-22 alkylalcohol and C12-20 alkylglucoside (Montanov L)	16	750	12
Simusol 165	4	800	3.2
Propylene glycol	15	650	9.75
Florasun 90	23	800	18.4
Silsense™ DW-18	30	1,100	33
Finsolv TN	20	320	6.4
Octyldodecanol	15	280	4.2
Octyl palmitate	20	280	5.6
Floramac® 10	10	2,200	22
Tocopheryl acetate	2	900	1.8
Vitamin A 0.01%	1	54,000	54
Panthanol	2	450	0.9
Butylated hydroxytoluene	1	1,100	1.1
Shea butter	4	550	2.2
Methyl paraben	1	220	0.22
Propyl paraben	1	240	0.24

Table E3 Costs of the serum with base compositions (continued)

Raw material used	Quantity used (g/1000 g)	Cost per unit (Baht/1000 g)	Cost (Baht)
Germaben® II E	4	750	3
Cyclopentasiloxane, dimethiconol, dimethicone crosspolymer (and) phenyltrimethicone blend (DCCB 3031)	15	350	5.25
sericin	14	5,000	70
Water D.I.	60	50	3
Sodium Polyacrylate (and) dimethicone (and) cyclopentasiloxane (and) trideceth-6 (and) PEG/PPG -18/18 dimethicone (DCRM 2051)	20	1,300	26
Perfume	6	1,542	9.252
musk	0.3	1,100	0.33
Total			330.9

Note: Loss of weight during the production process (% weight loss) was equal to 10%.

APPENDIX F

Cosmetic ingredients and raw material specifications

Table F 1 The of common names and international nomenclature of cosmetic ingredients

International nomenclature of cosmetic ingredients	Common names	Function
Arachidyl alcohol [and] behenyl alcohol [and] arachidyl glucoside	Montanov 202	Self emulsifier
Cetearyl alcohol/cetearyl glucoside	Montanov 68	Emulsifier
Isononyl isononanoate	Lanoll 99	Emollient
Dipalmitoylhydroxy Proline	Sepilift DPHP	Whitening agent
Cetearyl olivate, sorbitan olivate	Olivem 1000	Self emulsifier
Cetyl Palmitate, sorbitan palmitate, sorbitan olivate.	Oliwax LC	Vegetal wax
Caprylic/capric triglyceride	Capric triglyceride	Emulsifier, Solubilizer, Moisturizer
Jojoba esters 60	Floralester 60	Emollient, wax Lubricant, Moisturizer
Cetyl/Stearyl alcohol	Laurex CS	Emulsifier, Thickener
Cyclopentasiloxane (and) dimethicone/vinyl dimethicone crosspolymer	SFE 839	Silicone
Dimethyl polysiloxane, polydimethylsiloxane,	Dimethicone TSF 451-100	Silicone oil
Tocopherol	Vitamin E	Antioxidant

Table F 1 The of common names and international nomenclature of cosmetic ingredients (continued)

International nomenclature of cosmetic ingredients	Common names	Function
PEG-100 Stearate & glyceryl stearate	Simusol 165	Emulsifier, Thickener, Moisturizer
Arylates/C10-30 alkyl acrylate crosspolymer	Carbopol [®] Ultrez 21 Polymer	Thickening, Stabilizing, Suspending
Water & hexapeptide-11	Peptamide 6	Anti-aging agent
1,3-bis(hydroxymethyl)-5,5-dimethylimidazolidine-2,4-dione	DMDM hydantion	Preservative
Prop-2-enoic acid	Carbomer 940	Thickening, Suspending Stabilizing
<i>Helianthus Annus</i> (Sunflower) seed oil	Florasun 90	Emollient
Dimethicone PEG-7 isostearate	Silsense [™] DW- 18	Silicone
C12-15 Alkyl benzoate	Finsolv TN	Emollient ester.
Octyldodecanolum	Octyldodecanol	Emollients, Thickeners, Emulsifiers
2-Ethylhexyl palmitate	Octyl palmitate	Emollients, Thickeners Emulsifiers
Ethly macadamiate (and) tocopherol (and) malic Acid]	Floramac [®] 10	Emollient
Cyclomethicone & dimethicone copolyol	SF 1328	Silicone
Butylated hydroxytoluene	BHT	Antioxidant
Nitro musk fragrances	Musk	Fixative

Table F 1 The of common names and international nomenclature of cosmetic ingredients (continued)

International nomenclature of cosmetic ingredients	Common names	Function
Sodium polyacrylate (and) dimethicone (and) cyclopentasiloxane (and) trideceth-6 (and) PEG/PPG-18/18 dimethicone	DCRM 2051	Thickening Agent
Cetearyl alcohol (and) ceteth-20 phosphate (and) dicetyl phosphate	Crodafos CS-20 acid	Emulsifier
PPG-3 benzyl ether myristate	Crodamol STS	Emollient ester
Polyacrylamide and C13-14 isoparaffin and laureth-7	Sepic gel 305	Stabilizing and thickening agent
<i>Butyrospermum parkii</i>	Shea butter	Moisturizer
Phytelene EG 88 chamomile	Phytelene chamomile	Skin lightening
Phenoxyethanol / methylparaben / ethyl paraben / propylparaben / butylparaben	Sepicide HB	Preservative
Imidazolidinyl urea	Sepicide CI	Preservative
Sodium acrylate/acryloyldimethyl taurate copolymer (and) isohexadecane (and) polysorbate 80	Simugel EG	Emulsifier and stabilizing
Propylene glycol (and) diazolidinyl urea (and) methylparaben (and) propylparaben	Germaben [®] II E	Preservative
Cyclopentasiloxane,dimethiconol,dimethicone crosspolymer (and) phenyltrimethicone blend	DCCB 3031	Thickening agent
Sodium polyacrylate (and) dimethicone (and) cyclopentasiloxane (and)trideceth-6 (and) PEG/PPG -18/18 dimethicone	DCRM 2051	Thickening agent

Raw material specification

1. Promois[®] SERICIN-P (SEIWA KASEI Co. Ltd., Japan)

"Promois" was our trade name for polypeptide and its derivatives obtained through hydrolysis of various proteins. Being originated from natural resources, "Promois" was ecological human friendly raw material. "Promois" was hydrolyzed protein which had proper molecular weight in cosmetic use. It can bring out some effective results to skin or hair as moisturizing, protecting and repairing. Which type of origin and chemical-modification were used can differ its nature and characteristics

INCI Name	Sericin		
M.W	2000		
Appearance	White to light yellow powder		
pH	5.0-8.0 (1% water solution)		
Purity (Heavy metals)	20 ppm Max.		
Purity (Arsenic)	2 ppm Max.		
Loss on drying	12 % Max.		
Nitrogen	13.0-18.0 %		
Primary skin irritation	Non-irritation (10% solution)		
Eye irritation (HET-CAM)	Non irritation (2 % solution, chorioallantoic membrane)		
Reverse mutagenous (AMES)	Non-mutagenic (10 % solution)		
Skin sanitization	Non-irritation (10 % solution)		
Amino acid composition (mg/100 g)			
Glycine	15.0	Hydroxyproline	0.0
Arginine	3.1	Alanone	6.0

Threonine	7.7	Histidine	1.9
Valine	3.6	Serine	28.0
Lysine	1.8	Leucine	1.2
Tyrosine	1.4	Hydroxylysine	0.0
Isoleucine	0.9	Half cystine	0.8
Aspartic acid	18.6	Phenylalanine	0.0
Cysteic acid	4.2	Glutamic acid	5.7
Proline	0.0	Methionine	0.2

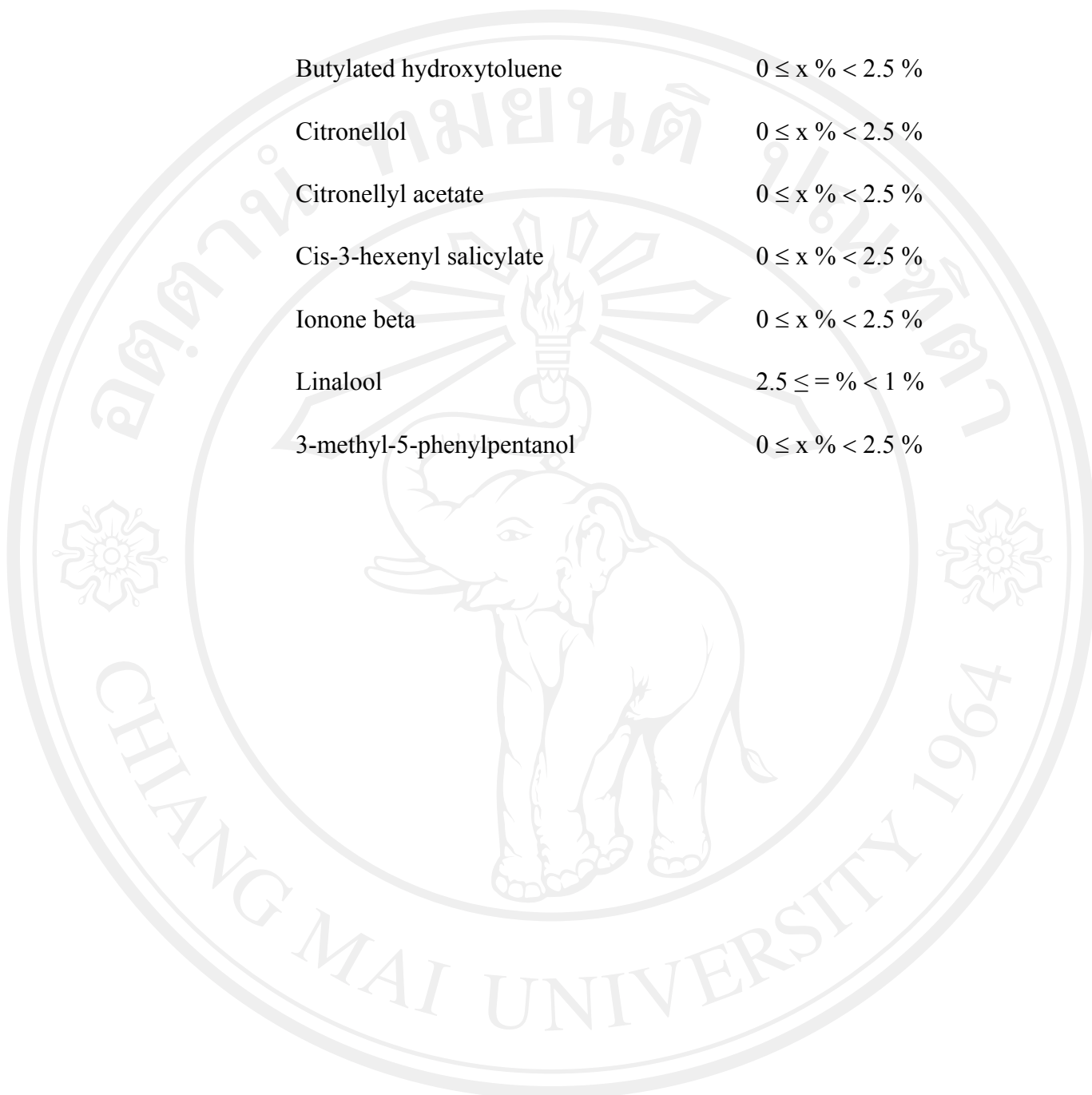
Promois[®] SERICIN-P has much of serine which human natural moisturizing factor (NMF) highly contains and it is quite superior in moisturizing.

2. Naomi Fragrance

Physical aspect	Liquide incolore a jaune pale / colourless to pale yellow liquid
Specific gravity	0.986-1.006
Refractive index	1.454-1.464
Flash point	> 100 °C – closed up

Composition on ingredients

Geraniol (with citronellol)	$0 \leq x \% < 2.5 \%$
Hexyl cinnamic aldehyde	$2.5 \leq \% < 1 \%$
1,3,4,6,7,8- Hexahydro-4,6,6,8,9-hexamethyl-indeno [5,6-C] pyran	$0 \leq x \% < 2.5 \%$
P-tert-butyl alpha-methyl dihydrocinnamic aldehyde (lilial)	$2.5 \leq \% < 1 \%$

The background of the page features a large, light gray watermark of the Chiang Mai University logo. The logo is circular and contains a central illustration of an elephant standing under a sunburst. The text 'มหาวิทยาลัยเชียงใหม่' (Mahavithayalai Chiang Mai) is written in Thai script along the top inner edge, and 'CHIANG MAI UNIVERSITY 1964' is written in English along the bottom inner edge. There are also decorative floral motifs on the left and right sides of the inner circle.

Butylated hydroxytoluene	$0 \leq x \% < 2.5 \%$
Citronellol	$0 \leq x \% < 2.5 \%$
Citronellyl acetate	$0 \leq x \% < 2.5 \%$
Cis-3-hexenyl salicylate	$0 \leq x \% < 2.5 \%$
Ionone beta	$0 \leq x \% < 2.5 \%$
Linalool	$2.5 \leq x \% < 1 \%$
3-methyl-5-phenylpentanol	$0 \leq x \% < 2.5 \%$

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SCHOLARSHIPS AND AWARDS

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2. Product development
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1994-1995: Supervisor, Grander Pharmacy, Ltd, Bangkok, Thailand

1998-present: Researcher, Kasetsart Agriculture and Agro-Industrial Product Improvement Institute (KAPI), Kasetsart University, Bangkok, Thailand

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