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APPENDICES

Appendix A

Preparation of *C. comosa* rhizome, chemical identification, and preparation of *C. comosa* suspension

Preparation of *Curcuma comosa* rhizome

C. comosa rhizome was kindly provided by Professor Dr. Apichart Suksamrarn, Faculty of Sciences, Ramkamhaeng University, Thailand. In brief, dried rhizome of *C. comosa* was collected from Nakornpathom province. A voucher specimen (BKF No. 97298) was deposited at the Forest Herbarium, Royal Forest Department, Ministry of Agriculture and Cooperatives, Bangkok. *C. comosa* rhizomes were sliced and dried at 50 – 60 °C. The dried rhizomes were pulverized before giving to the animals.

Chemical identification

C. comosa was characterized by Apichart Suksamrarn et al. (unpublished data). The major constituent in *C. comosa* powder were two diarylheptanoids: 1,7-diphenyl-(*6E*)-6-hepten-3-ol and 1,7-diphenyl-(*4E,6E*)-4,6-heptadien-3-ol.

Preparation of *C. comosa* suspension

C. comosa suspension for animal administration were prepared daily by dissolving 400 mg of *C. comosa* powder with 1 ml of deionized water to make a concentration of 400 mg/ml of *C. comosa* suspension and mixed before feeding to experimental animals.

Appendix B

Preparation of simvastatin

Preparation of simvastatin

Vascor® (containing 10 mg simvastatin per tablet manufactured by Biolab Co., Ltd., Samutrprakarn, Thailand) was purchased from an accredited drugstore, Bangkok, Thailand. The expired date of drug was checked. Each tablet of simvastatin was divided in half before giving to the animals.

Appendix C

Experimental diets

Food

1. Standard food for rabbits was purchased from Charoen Pokphand Foods Public Company Limited, Thailand. The composition of the standard food was as following:

Raw protein	17.00%
Raw fiber	17.00%
Raw ash	7.00%
Raw fat	2.5%
Methionine	0.35%
Lysine	0.95%
Calcium	0.85%
Phosphate	0.55%
Sodium	0.30%
Magnesium	0.25%
Vitamin A	30.00 IU/kg
Vitamin D3	1.00 IU/kg
Vitamin E	100.00 IU/kg

2. High-cholesterol diet was the standard food combined with 1.0% cholesterol or 0.5% cholesterol by Charoen Pokphand Foods Public Company Limited, Bangkok, Thailand.

Appendix D

Experimental animals treatment and samples collection

Experimental animals

Twelve male New Zealand White (NZW) rabbits of body weigh between 1.5 – 2.0 kg were obtained from the National Laboratory Animal Center, Mahidol University, Salaya, Nakornpathom, Thailand. The animals were housed one per cage at the Faculty of Medicine, Srinakharinwirot University, Bangkok, Thailand and acclimatized for two weeks before being entered into an experiment. All animals were kept in a controlled humidify room at a constant temperature of 25 ± 2 °C and maintained on 12-hour alternate light-dark cycle. They were allowed to freely access to food and drinking water.

Animal treatment

Twelve NZW rabbits were randomly divided into three treatment groups of 4 rabbits each as following:

1. Group 1: NZW rabbits were given orally with 1.0% cholesterol diet for 1 month. After 1 month, the animals were continually given 0.5% cholesterol diet for 3 months
2. Group 2: NZW rabbits were given orally with 1.0% cholesterol diet for 1 month. After 1 month, the animals were continually given 0.5% cholesterol diet and simvastatin at the dosage of 5 mg/day for 3 months
3. Group 3: NZW rabbits were given orally with 1.0% cholesterol diet for 1 month. After 1 month, the animals were continually given 0.5% cholesterol diet and *C. comosa* at the dosage of 400 mg/kg/day for 3 months

Samples collection

At the end of the treatment, animals were fasted for 12 hours before anesthesized with sodium pentobarbital by intravenous at the dosage of 100 mg/kg before collecting blood. Tissue samples were immediately removed from the body of rabbits, rinsed with PBS buffer pH 7.4 for 3 times, and then stored at -80 °C until analysis of cytokine expression.

Appendix E

- Study Protocol Approval by Ethic Committee of the Faculty of Medicine, Srinakharinwirot University, Bangkok, Thailand

- Study Protocol Approval by Ethic Committee of the Faculty of Pharmaceutical Sciences, Chulalongkorn University, Bangkok, Thailand , 2008

62 หมู่ 7 อำเภอองครักษ์
จังหวัดนครนายก 26120
โทร.0-3739-5085 ต่อ 10513

ใบอนุญาตให้ใช้สัตว์

ในงานวิจัย งานทดสอบ งานผลิตชีววัตถุ และงานสอน

เลขที่หนังสือรับรอง 10/2550

ชื่อโครงการวิจัย	การศึกษาผลของสารสกัดว่านชักมดลูกต่อการยับยั้งโรคหลอดเลือดแข็งตัวในกระต่าย
	Inhibition of atherosclerosis development in rabbits by crude extracts of *Curcuma Comosa Roxb.*
ชื่อหัวหน้าโครงการ / หน่วยงานที่สังกัด	ผศ ดร.ลัดดาวัลย์ ผิวทองงาม / ภาควิชาเภสัชวิทยา คณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ
รหัสโครงการ	10/2550
สถานที่ทำการวิจัย	คณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ
เอกสารรับรอง	- แบบเสนอโครงการวิจัยเพื่อขอรับการพิจารณา - แบบฟอร์มขออนุญาตใช้สัตว์
รับรองโดย	คณะกรรมการรับผิดชอบและดูแลการใช้สัตว์ทดลอง
วันที่รับรอง	8 พฤศจิกายน 2550
วันหมดอายุ	7 พฤศจิกายน 2551

ใบอนุญาตนี้ให้ไว้เพื่อแสดงว่าคณะกรรมการรับผิดชอบและดูแลการใช้สัตว์ทดลอง คณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ ซึ่งมีหน้าที่กำกับดูแลการใช้สัตว์ ในงานวิจัย งานทดสอบ งานผลิตชีววัตถุ และงานสอนให้เป็นไปตามจรรยาบรรณการใช้สัตว์ของสภาวิจัยแห่งชาติ

ลงนาม.....

(ผู้ช่วยศาสตราจารย์ ดร.ปัทมา ลิ้วนิช)

ประธานคณะกรรมการฯ

ลงนาม.....

(ศาสตราจารย์ นายแพทย์สมเกียรติ วัฒนศิริวัยกุล)

คณบดีคณะแพทยศาสตร์

Chulalongkorn University Animal Care and Use Committee

Certificate of Project Approval	☑ Original ☐ Renew
Animal Use Protocol No. 08-33-002	**Approval No. 08-33-002**
Protocol Title Effects of *Curcuma comosa* rhizome on paraoxonase activity and oxidative stress in rabbits fed with high-cholesterol diet	
Principal Investigator Somsong Lawanprasert, Ph.D.	
Certification of Institutional Animal Care and Use Committee (IACUC) This project has been reviewed and approved by the IACUC in accordance with university regulations and policies governing the care and use of laboratory animals. The review has followed guidelines documented in Ethical Principles and Guidelines for the Use of Animals for Scientific Purposes edited by the National Research Council of Thailand.	
Date of Approval March 24, 2008	**Date of Expiration** March 24, 2009
Applicant Faculty/Institution **Faculty of Pharmaceutical Sciences, Chulalongkorn University, Phyathai Rd., Pathumwan BKK-THAILAND. 10330**	
Signature of Chairperson Withaya Janthasoot	**Signature of Authorized Official**
Name and Title **WITHAYA JANTHASOOT** **Chairman**	**Name and Title** **RUNGPETCH SAKULBUMRUNGSIL, Ph.D.** **Associate Dean (Research and Academic Service)**
The official signing above certifies that the information provided on this form is correct. The institution assumes that investigators will take responsibility, and follow university regulations and policies for the care and use of animals. *This approval is subjected to assurance given in the animal use protocol and may be required for future investigations and reviews.*	

VITAE

Mr. Puttavee Charoenwanthanang was born on November 30, 1985 in Bangkok, Thailand. He graduated with a Bachelor of Science in Pharmacy (First Class Honours) in 2008 from Faculty of Pharmaceutical Sciences, Chulalongkorn University, Thailand.