

ชื่อวิทยานิพนธ์	องค์ประกอบทางเคมีของเมล็ดตินเป็ดทรายและถ้าออบແฉบ
ผู้เขียน	นายสาโรจน์ จีนประชา
สาขาวิชา	เคมีอินทรีย์
ปีการศึกษา	2546

บทคัดย่อ

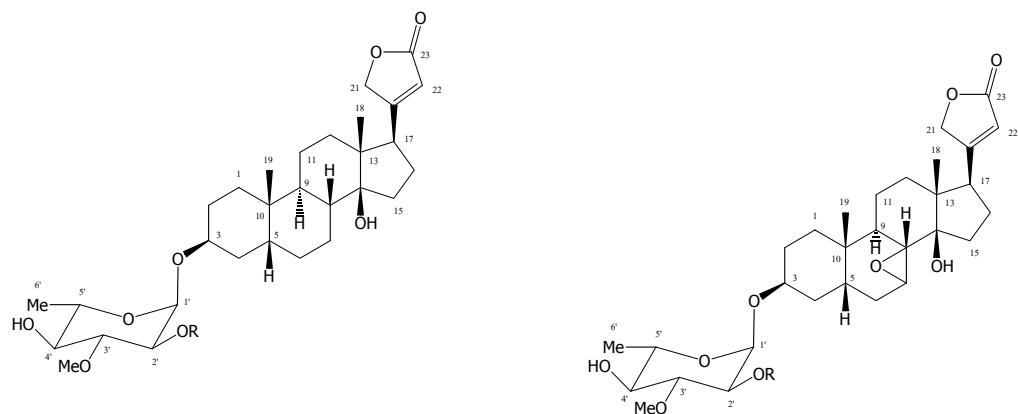
ตอน 1 องค์ประกอบทางเคมีจากเมล็ดตินเป็ดทราย (*Cerbera manghas*)

การศึกษาส่วนสกัด hairy root คลอไรด์ของเมล็ดสดของต้นตินเป็ดทรายสามารถแยกสารประกอบการคิดโน่นไลด์ไกลโคลไซด์ใหม่ 1 สาร คือ 7,8-dehydrocerberin (**SM6**) และเป็นสารที่มีการรายงานแล้ว 5 สาร คือ 17β -neriifolin (**SM1**), deacetyltaghinin (**SM2**), taghinin (**SM3**), $2'$ -*O*-acetyl-cerleaside A (**SM4**) และ cerberin (**SM5**)

ตอน 2 องค์ประกอบทางเคมีจากถ้าออบແฉบ (*Derris trifoliata*)

ส่วนสกัด hairy root ของเมล็ดตินเป็ดทรายและถ้าออบແฉบ สามารถแยกสารใหม่ได้ 3 สาร คือ trifolinone A (**STH4**), 6,7-dimethoxy-2,3-dihydro-4*H*-chromen-4-one (**STH10**) และ trifolinone B (**STH11**) นอกจากนี้ยังพบสารที่มีการรายงานแล้ว 19 สาร คือ lupinifolin (**STH1**), dereticulatin (**STH2**), α -toxicarol (**STH3**), deguelin (**STH5**), rotenone (**STH6**), 12a-hydroxyrotenone (**STH7**), 12a-hydroxyelliptone (**STH8**), tephrosin (**STH9**), 1'''-hydroxy-2''',3'''-epoxylupinifolin (**STH12**), lupeol (**STH13**), 6a,12a-dehydro- α -toxicarol (**STC1**), senegalensien (**STC2**), medicarpin (**STC3**), 6a,12a-dehydrorotenone (**STC4**), prunetin (**STC5**), lupinifolinol (**STC6**), 6a,12a-dehydrodeguelin (**STC7**), 4-methoxy-1-benzofuran-5-carboxylic acid (**STC8**) และ 7,4'-dihydroxy-3'-methoxy-isoflavone (**STC9**) และสารสมของ β -sitosterol (**STH14**) และ stigmasterol (**STH15**)

โครงสร้างของสารประกอบเหล่านี้มีโครงสร้างที่โดยใช้ข้อมูลทาง สเปกโตรสโคปี สำหรับสารประกอบ SM2 และ STH12 ยืนยัน โครงสร้างด้วยข้อมูลทางเอกซ์เรย์

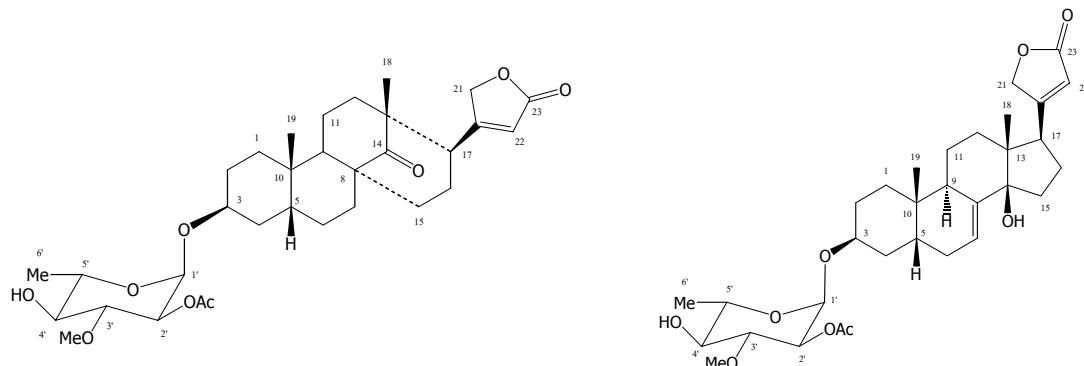


SM1: R= H: 17β -Neriifolin

SM5: R= Ac: Cerberin

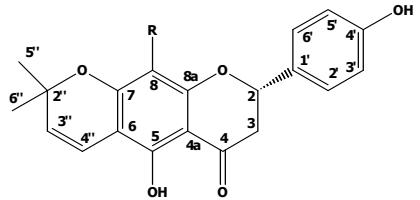
SM2: R= H: Deacetyltanghinin

SM3: R= Ac: Tanghinin

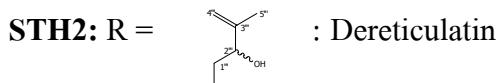


SM4: 2'-O-Acetyl-cerleaside A

SM6: 7,8-Dehydrocerberin

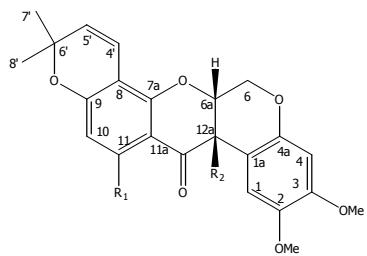


STH1: R = isoprenyl : Lupinifolin



STH12: R =

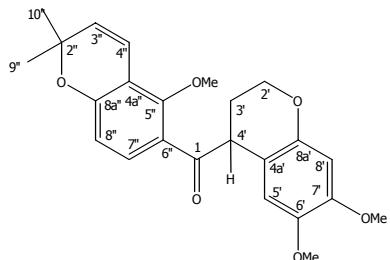
:1'''-Hydroxy-
2'''',3'''-



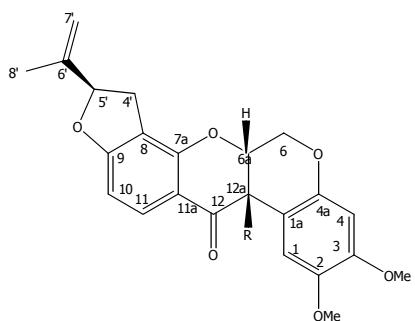
STH3: R₁ = OH, R₂ = H : α -Toxicarol

STH5: R₁ = H, R₂ = H : Deguelin

STH9: R₁ = H, R₂ = OH : Tephrosin

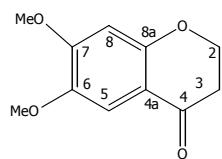
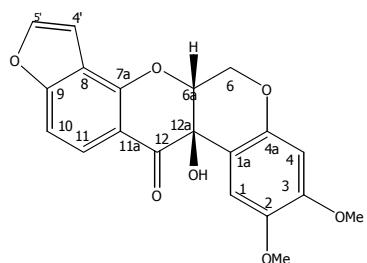


STH4: Trifolinone A

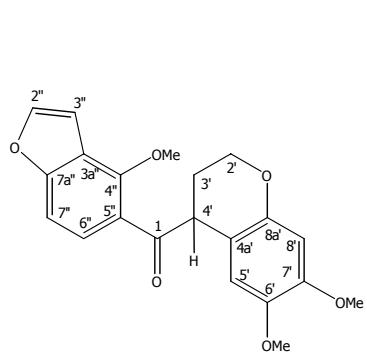


STH6: R = H : Rotenone

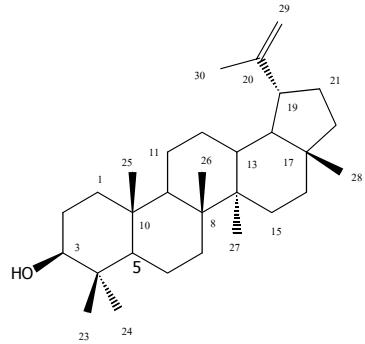
STH7: R = OH : 12a-Hydroxyrotenone



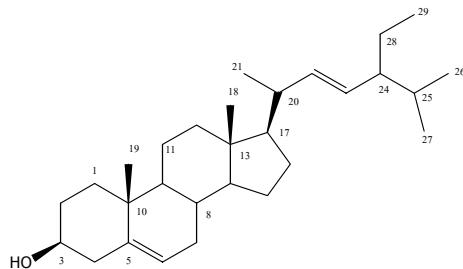
STH8: 12a-Hydroxyelliptone **STH10:** 6,7-Dimethoxy-2,3-dihydro-4*H*-chromen-4-one



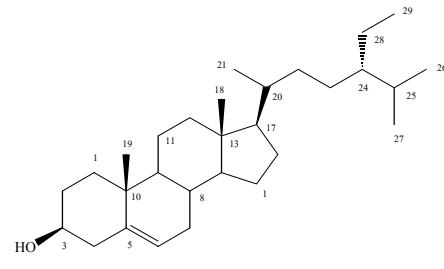
STH11: Trifolinone B



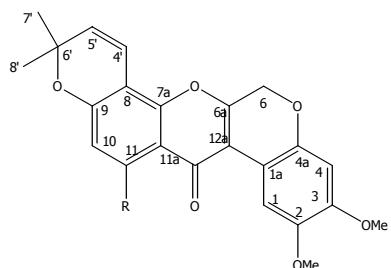
STH13: Lupeol



STH14: Stigmasterol

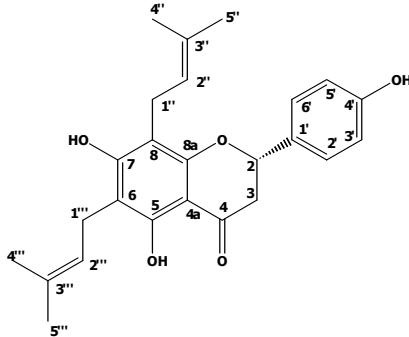


STH15: β -Sitosterol

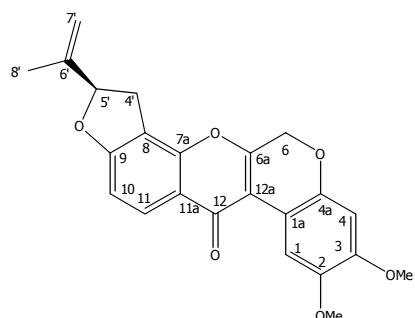
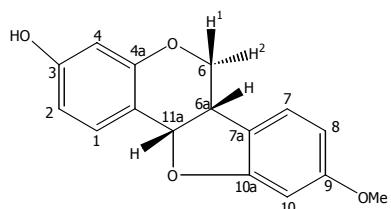


STC1: R = OH : 6a,12a-Dehydro- α -toxicarol

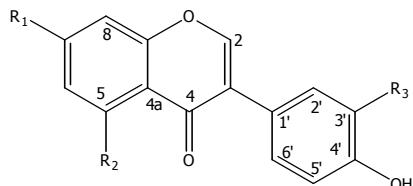
STC7: R = H : 6a,12a-Dehydrodeguelin



STC2: Senegalensein



STC3: Medicarpin

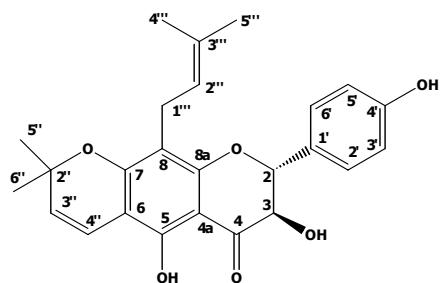


STC4: 6a,12a-Dehydrorotenone

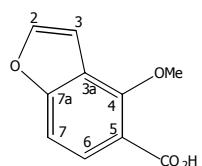
STC5: $R_1 = \text{OMe}$, $R_2 = \text{OH}$, $R_3 = \text{H}$: Prunetin

STC9: $R_1 = \text{OH}$, $R_2 = \text{H}$, $R_3 = \text{OMe}$:

7,4'-Dihydroxy-3'-methoxyisoflavone



STC6: Lupinifolinol



STC8: 4-Methoxy-1-benzofuran-5-carboxylic acid

Thesis Title	Chemical Constituents from the Seeds of <i>Cerbera manghas</i> and the Stems of <i>Derris trifoliata</i>
Author	Mr. Sarot Cheenpracha
Major Program	Organic Chemistry
Academic Year	2003

ABSTRACT

Part I Chemical Constituents from the Seeds of Cerbera manghas

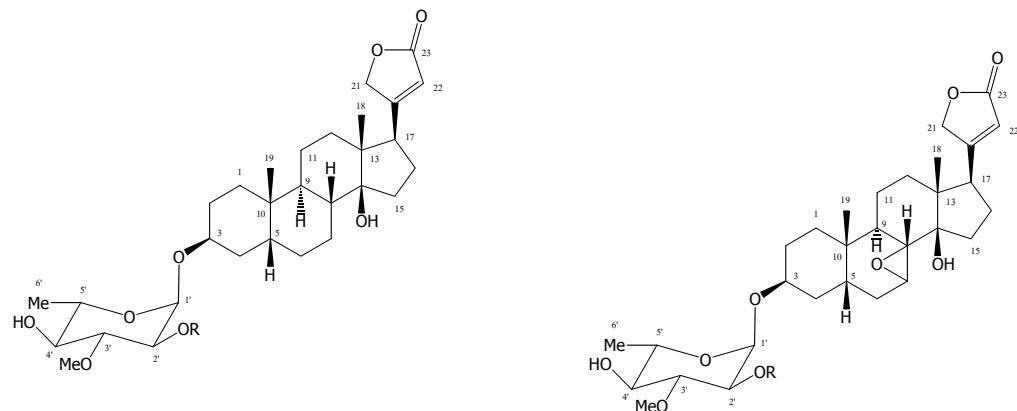
Phytochemical studies of the crude methylene chloride extract from the fresh seeds of *Cerbera manghas* led to isolation of one new cardenolide glycoside, 7,8-dehydrocerberin (**SM6**), together with four known cardenolide glycosides, 17 β -neriifolin (**SM1**), deacetyltanghinin (**SM2**), tanghinin (**SM3**), 2'-*O*-acetyl-cerleaside A (**SM4**) and cerberin (**SM5**).

Part II Chemical Constituents from the Stems of Derris trifoliata

The hexane and methylene chloride extracts of the stems of *Derris trifoliata* yielded three new compounds, trifolinone A (**STH4**), 6,7-dimethoxy-2,3-dihydro-4*H*-chromen-4-one (**STH10**) and trifolinone B (**STH11**), together with nineteen known compounds, lupinifolin (**STH1**), dereticulatin (**STH2**), α -toxicarol (**STH3**), deguelin (**STH5**), rotenone (**STH6**), 12a-hydroxyrotenone (**STH7**), 12a-hydroxyelliptone (**STH8**), tephrosin (**STH9**), 1'''-hydroxy-2''',3'''-epoxylupinifolin (**STH12**), lupeol (**STH13**), 6a,12a-dehydro- α -toxicarol (**STC1**), senegalensien (**STC2**), medicarpin (**STC3**), 6a,12a-dehydrorotenone (**STC4**), prunetin (**STC5**), lupinifolinol (**STC6**), 6a,12a-dehydrodeguelin (**STC7**), 4-methoxy-1-benzofuran-5-carboxylic acid (**STC8**)

and 7,4'-dihydroxy-3'-methoxyisoflavone (**STC9**) and a mixture of β -sitosterol (**STH14**) and stigmasterol (**STH15**).

Their structures were elucidated by spectroscopic methods. In addition, the structures of **SM2** and **STH12** were confirmed by X-ray diffraction.

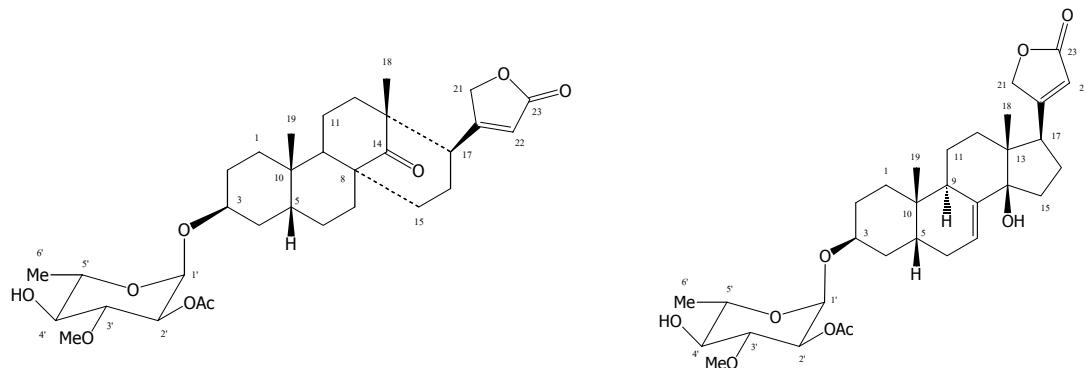


SM1: R= H: 17 β -Neriifolin

SM5: R= Ac: Cerberin

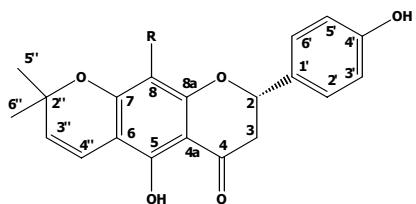
SM2: R= H: Deacetyltanghinin

SM3: R= Ac: Tanghinin

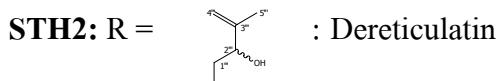


SM4: 2'-O-Acetyl-cerleaside A

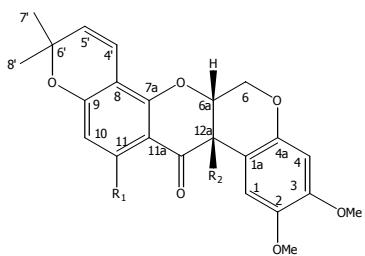
SM6: 7,8-Dehydrocerberin



STH1: R = isoprenyl : Lupinifolin



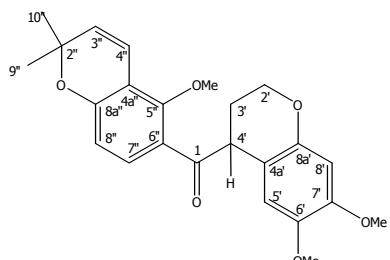
STH12: R = : 1'''-Hydroxy-
2'''-*o*-methoxy-



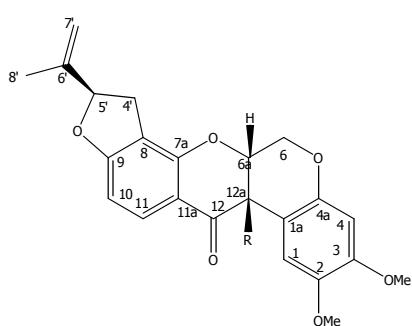
STH3: R₁ = OH, R₂ = H : α -Toxicarol

STH5: R₁ = H, R₂ = H : Deguelin

STH9: R₁ = H, R₂ = OH : Tephrosin

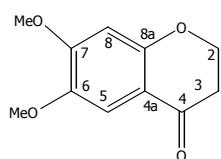
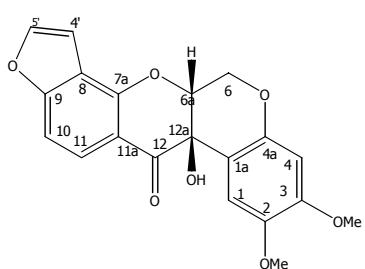


STH4: Trifolinone A

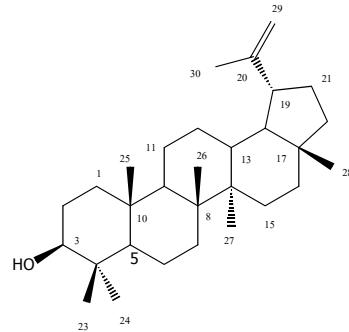
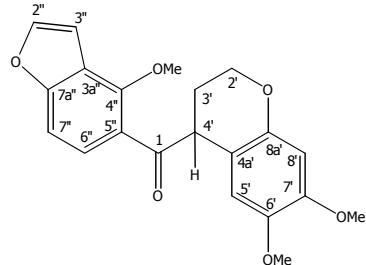


STH6: R = H : Rotenone

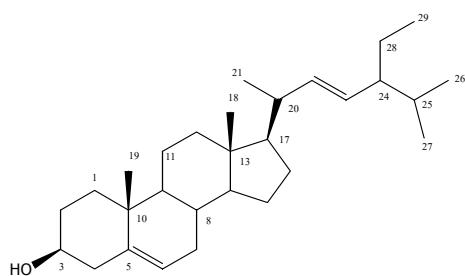
STH7: R = OH : 12a-Hydroxyrotenone



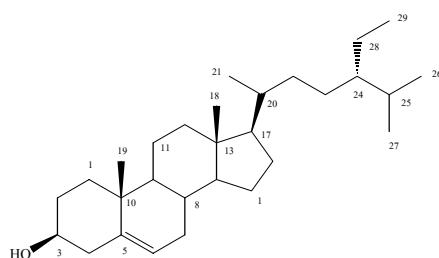
STH8: 12a-Hydroxyelliptone **STH10:** 6,7-Dimethoxy-2,3-dihydro-4*H*-chromen-4-one



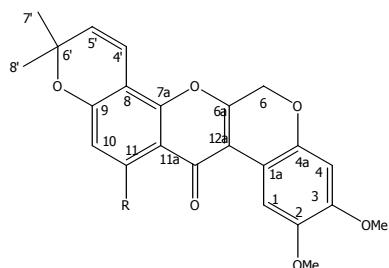
STH11: Trifolinone B



STH13: Lupeol

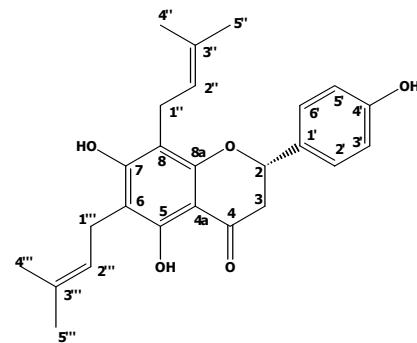


STH14: Stigmasterol



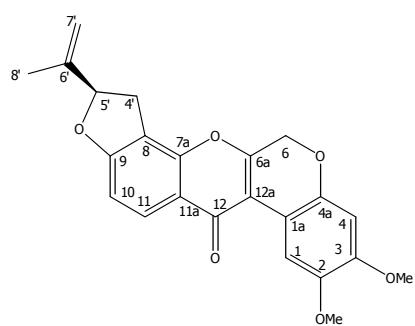
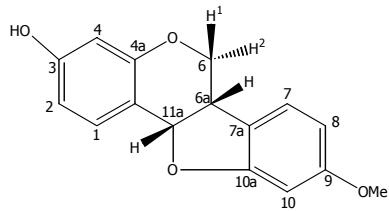
STC1: R = OH : 6a,12a-Dehydro- α -Toxicarol

STH15: β -Sitosterol

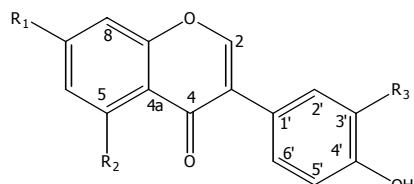


STC7: R = H : 6a,12a-Dehydrodeguelin

STC2: Senegalensein



STC3: Medicarpin

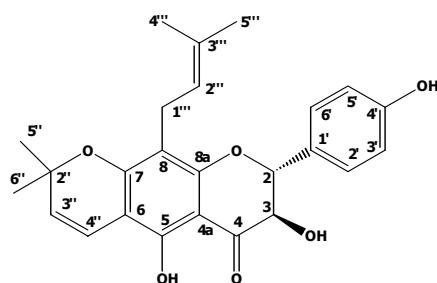


STC4: 6a,12a-Dehydrorotenone

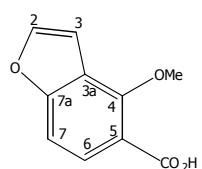
STC5: R₁ = OMe, R₂ = OH, R₃ = H : Prunetin

STC9: R₁ = OH, R₂ = H, R₃ = OMe :

7,4'-Dihydroxy-3'-methoxyisoflavone



STC6: Lupinifolinol



STC8: 4-Methoxy-1-benzofuran-5-carboxylic acid