

JAN-DEC 2013



Standards & Reference

Furocoumarins, 99%

Coumarins, 99%

Custom Manufacturing

Phytochemicals

Natural Products

Characterisation & Analysis

HPLC, NMR, IR, LC-MS

X-Ray diffraction

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Herboreal Ltd is a start up from the University of Edinburgh and is committed to providing rare phytochemicals, reference standards and plant natural products for R&D purposes.

Ordering and Customer Service

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How to place an Order

Orders can be placed by e-mail, There is no minimum order charge. Please refer to our terms and condition

HERBOREAL Products and Services

Standards & Reference Natural Compounds

Furocoumarins
 Coumarins

Custom Manufacturing ; Custom Synthesis

Natural compounds
 Derivatives

Characterisation & Analysis

Chromatography

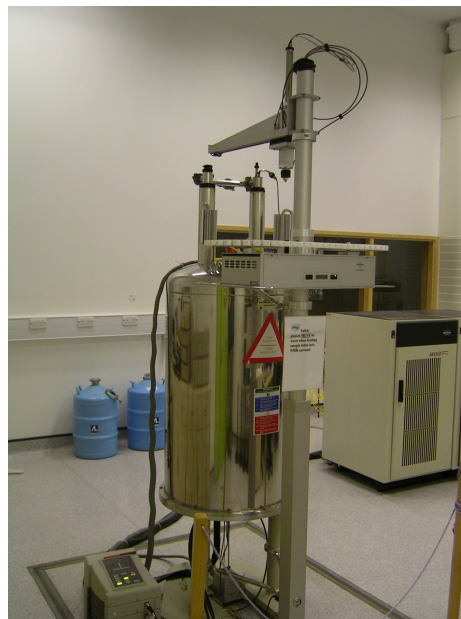
Normal and Reverse phase HPLC using isocratic or gradient elution
 Capillary column temperature ramp of methodology for solvent analysis by GC
 Preparative scale chromatography
 LC-MS to allow for rapid identification of mixtures

X-Ray diffraction

Accurate product identification

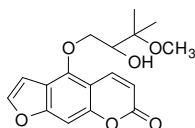
Spectrometry

1D and 2D NMR (400 and 500MHz) allowing analysis of 1H, 13C 31P spectra, and many 2D experiments including COSY, HMBC, NOESY.
 ICP OES for elemental analysis
 UV/vis & Infrared spectrometry allows fast and accurate product identification.



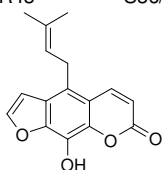
PURE PHYTOCHEMICALS

H002	Alatol	99%
[2-8°C]	7H-Furo[3,2-g][1]benzopyran-7-one, 4-(2-hydroxy-3-methoxy-3-methylbutoxy)- (9CI), Alatol; Alatol (Prangos); tert-O-Methylprangol	
CAS	50927-97-4	25 mg £357
MF	C17 H18 O6	100 mg £998
FW	318.33	500 mg £4,192
	Xi (Irritant) R43 S36/37	



Reference
Jimenez, Benedicto; Grande, Maria Concepcion; Anaya, Josefa; Torres, Pascual; Grande, Manuel. Coumarins from *Ferulago capillaris* and *F. brachyloba*. *Phytochemistry* (2000), 53(8), 1025-1031.

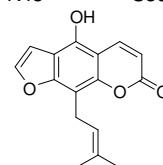
H003	Alloimperatorin	99%
[2-8°C]	5-Benzofuranacrylic acid, 6,7-dihydroxy-4-(3-methyl-2-butenyl)-, .delta.-lactone (7CI); 7H-Furo[3,2-g][1]benzopyran-7-one, 9-hydroxy-4-(3-methyl-2-butenyl)- (8CI,9CI); Alloimperatorin (6CI); NSC 301051; Prangenidin	
CAS	642-05-7	25 mg £357
MF	C16 H14 O4	100 mg £998
FW	270.28	500 mg £4,192
	Xi (Irritant) R43 S36/37	



Reference
Kang, Jie; *Journal of Pharmaceutical and Biomedical Analysis* 2008, V47(4-5), P778-785. Razdan, T. K.; *Phytochemistry* 1987, V26(7), P2063-9. Abou-Elzahab, M. M.; *Bulletin of the Chemical Society of Japan* 1987, V60(12), P4433-5. Chen, Qinhua; *Journal of Separation Science* 2008, V31(18), P3218-3224. Cai, Jin-Na; *Journal of Natural Products* 2000, V63(4), P485-488

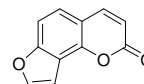
FUROCOUMARINS

H004	Alloisioimperatorin	99%
[2-8°C]	7H-Furo[3,2-g][1]benzopyran-7-one, 4-hydroxy-9-(3-methyl-2-butenyl)- (9CI); 5-Hydroxy-8-(3'-methyl-2'-butenyl) furocoumarin; Alloisioimperatorin	
CAS	35214-83-6	25 mg £357
MF	C16 H14 O4	100 mg £998
FW	270.28	500 mg £4,192
	Xi (Irritant) R43 S36/37	



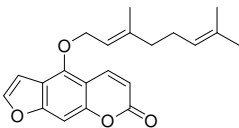
Reference
Razdan, T. K.; *Phytochemistry* 1987, V26(7), P2063-9. Lokar, Laura R. Coassini; *Phytochemistry* 1988, V27(4), P1073-7.

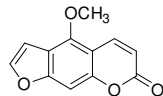
H006	Angelicin	99%
[2-8°C]	Isopsoralen; 2H-Furo(2,3-h)(1)benzopyran-2-one; 2-Oxo-(2H)-furo(2,3-h)-1-benzopyran	
CAS	523-50-2	25 mg £196
MF	C11H6O3	100 mg £549
FW	186.16	500 mg £2,305
	Angelicin is an angular furocoumarin, a DNA intercalator and crosslinker with diverse photobiological effects. Upon long wavelength UV irradiation, forms monoadduct with double-stranded DNA and react with unsaturated fatty acids. Inhibits DNA and RNA synthesis and cell replication in Ehrlich ascites tumor cells. Angelicin is used as tranquilliser, sedative, or anticonvulsant.	
	R20/21/22, R36/37/38, R40	S26, S36/37/39
	Xn (Harmful)	



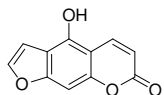
Reference
Kavli, G., et al., *Contact Dermatitis*, 1983, 9, 5, 365-366. Bordin, F., et al., *Pharmacol. Ther.* 1991, 52, 331-363. Ebermann, R., et al., *J. Photochem. Photobiol. B, Biol.* 1996, 36, 95-97.

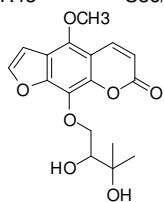
PURE PHYTOCHEMICALS

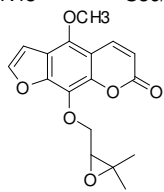
H101		Bergamottin	99%
[2-8°C]		5-Geranyloxypsoralen; Bergamotone; 7H-Furo(3,2-g)(1)benzopyran-7-one,4-((3,7-dimethyl-2,6-octadienyl)oxy)-,(E)-	
CAS	7380-40-7	25 mg	£84
MF	C21H22O4	100 mg	£235
FW	338.41	500 mg	£985
		Radiation-sensitizing agent. Constituent of bergamot oil. Potent chemopreventive agents against aflatoxin B1-inducible cytotoxicity in H4IIE cells with a bifunctional effects on glutathione S-transferase and CYP1A. Potent inhibitor and inactivator of cytochrome P450 1A1-mediated monooxygenase in both murine hepatic microsomes and in a reconstituted system using purified human P450 1A1.	
		Xi (Irritant)	R43 S36/37
			
		Reference Cai, Y. et al., Carcinogenesis 1997, 18, 1, 215-222. Mammen, J.S. et al., Pharmacogenet. Genomics 2005, 15, 3, 183-188.	

H102		Bergapten	99%
[2-8°C]		5-Methoxypsoralen; 5-MOP; Heraclin; Majudin; Psoraderm; 4-Methoxyfuro(3,2-g)benzopyrane-7-one;	
CAS	484-20-8	25 mg	£48
MF	C12H8O4	100 mg	£134
FW	216.19	500 mg	£567
		Intercalating agent for DNA forming covalent cross-links upon UV-irradiation. Bergapten is used in combination with ultraviolet A (UVA) radiation, in the treatment of psoriasis and vitiligo.	
		Xi (Irritant)	R43 S36/37
			
		Reference Kavli, G., et al., Contact Dermatitis, 1983, 9, 5, 365-366. Fujita, H. et al. Chem. Lett. (jpn), 1986, 545. Boyer, V. et al. Biochem. 1988, 27, 3011. McNeely, W. et al., Drugs 1998, 56, 667-690.	

FUROCOUMARINS

H103		Bergaptol	99%
[2-8°C]		5-Hydroxypsoralen; 7H-Furo(3,2-g)(1)benzopyran-7-one, 4-hydroxy-	
CAS	486-60-2	25 mg	£143
MF	C11H6O4	100 mg	£402
FW	202.17	500 mg	£1,689
		Naturally occurring furanocoumarin extracted from Peucedanum officinale L. and other plants. Presence also determined in citrus juice by HPLC. Photosensitizing agent. Skin-photosensitising hydroxyfurocoumarin.	
		Xi (Irritant)	R43 S36/37
			
		Reference Tamas, M. et al., Farmacia (Bucharest) 1979, 27, 99-102. Abou Elzhab, M. Pharmazie 1993, 48, 144-145. Uesawa, Y. et al., J. Pharma. Soc. Jap. (Japanese.) 2005, 125, 11, 875-879.	

H007		Byakangelicin*	99%
[2-8°C]		(±)-Byakangelicin; 5-Methoxy-8-(2,3-dihydroxy-3-methylbutoxy)psoralene; Bjacangelicin; Bjakangelicin; Byakangelicin; Byankangelicine	
CAS	19573-01-4	25 mg	£257
MF	C17 H18 O7	100 mg	£719
FW	334.33	500 mg	£3,018
		Xi (Irritant)	R43 S36/37
			
		Reference Kimura, Yoshiyuki; Journal of Natural Products 1997, V60(3), P249-251.	

H008		Byakangelicol*	99%
[2-8°C]		7H-Furo(2,3-g)(1)benzopyran-7-one,9-((3,3-dimethyloxiranyl)methoxy)-4-methoxy-,(R)	
CAS	61046-59-1	25 mg	£257
MF	C17H16O6	100 mg	£719
FW	316.31	500 mg	£3,018
		Hepatoprotective activity on tacrine-induced cytotoxicity in Hep G2 cells.	
		Xi (Irritant)	R43 S36/37
			
		Reference Oh, H. Planta Med. 2002, 68, 5, 463-464.	

PURE PHYTOCHEMICALS

H011 Cnidicin 99%

[2-8°C] 7H-Furo[3,2-g][1]benzopyran-7-one, 4,9-bis[(3-methyl-2-butenyl)oxy]- (8Cl,9Cl); Cnidicin

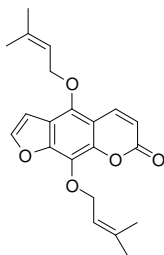
CAS 14348-21-1 25 mg £257

MF C21 H22 O5 100 mg £719

FW 354.4 500 mg £3,018

Linear furocoumarin from the root of *Angelica dahurica*, showing antiproliferative effect on cultured tumor cell lines.

Xi (Irritant) R43 S36/37



Reference

K. Young-Kyoon et al. *Phytotherapy Research*, 2007, 21, 3, 288-290. Sommer, H. et al. *Perfumer & Flavorist*, 2003, 28, 1, 18, 20-34. Ryu, Shi Yong et al. *Planta Medica* 2001, 67, 2, 172-174. Ziegler, Herta et al. *Flavour and Fragrance Journal* 1992, 7, 3, 129-39.

H012 Cnidilin 99%

[2-8°C] 5-Isopentenylloxanthotoxin, 7H-Furo[3,2-g][1]benzopyran-7-one, 9-methoxy-4-[(3-methyl-2-buten-1-yl)oxy]-; 7H-Furo[3,2-g][1]benzopyran-7-one, 9-methoxy-4-[(3-methyl-2-butenyl)oxy]- (8Cl,9Cl); 5-(Isopentenyloxy)-8-methoxypsoralen; Cnidilin; Isophellopterin; Knidilin

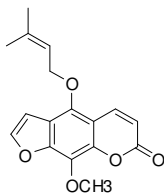
CAS 14348-22-2 25 mg £257

MF C17H16O5 100 mg £719

FW 300.31 500 mg £3,018

Linear furocoumarin isolated from *Cnidium dubium*, from *Sphenosciadium capitellatum* and *Radix Angelica dahurica*.

Xi (Irritant) R43 S36/37



Reference

Lee, K-H., et al. *J. Pharm. Sci.* 1969, 58, 675-681. Wang, T-T et al. *Chromatographia* 2007, 65, 7/8, 477-481.

FUROCOUMARINS

H210 6',7'-Dihydroxy,8-Geranylpsoralen 99%

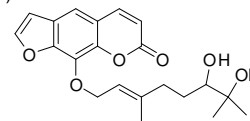
[2-8°C] 7H-Furo[3,2-g][1]benzopyran-7-one, 9-[[2(E)-6,7-dihydroxy-3,7-dimethyl-2-octen-1-yl]oxy]-

CAS 889112-17-8 25 mg £357

MF C21 H24 O6 100 mg £998

FW 372.42 500 mg £4,192

Xi (Irritant) R43 S36/37



Reference

Adams, Michael; Ettl, Sabine; Kunert, Olaf; Wube, Abraham Abebe; Haslinger, Ernst; Bucar, Franz; Bauer, Rudolf. Antimycobacterial activity of geranylated furocoumarins from *Tetradium daniellii*. *Planta Medica* (2006), 72(12), 1132-1135.

H112 5,6-Dihydroxyangelicin 99%

[2-8°C] 5-Benzofuranacrylic acid,4,6,7-trihydroxy-,g-lactone (6Cl)

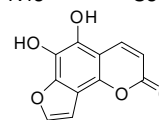
CAS 857019-99-9 25 mg £257

MF C11H6O5 100 mg £719

FW 218.17 500 mg £3,018

Natural angular Furocoumarin isolated from the root of *Angelica glabra* Makino and from the fruits of *Ligusticum acutilobum*.

Xi (Irritant) R43 S36/37



Reference

Kariyone, T. et al. *Yakugaku Zasshi* 1937, 57, 183-184. Noguchi, T. et al. *Berichte der Deutschen Chemischen Gesellschaft [Abteilung] B: Abhandlungen* 1938, 71B, 344-352.

H207 6',7'-Dihydroxybergamottin 99%

[2-8°C] 7H-Furo[3,2-g][1]benzopyran-7-one, 4-[(6,7-dihydroxy-3,7-dimethyl-2-octenyl)oxy]-, (E)-; 7H-Furo[3,2-g][1]benzopyran-7-one, 4-[[2(E)-6,7-dihydroxy-3,7-dimethyl-2-octenyl]oxy]- (9Cl); 6',7'-Dihydroxybergamottin

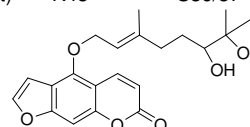
CAS 145414-76-2 25 mg £257

MF C21 H24 O6 100 mg £719

FW 372.42 500 mg £3,018

CYP3A4 inhibitor

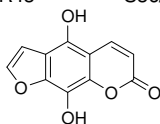
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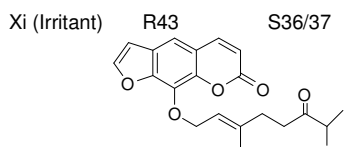
Girenavar, Basavaraj; *Bioorganic & Medicinal Chemistry* 2006, V14(8), P2606-2612. Manthey, John A.; *Journal of Agricultural and Food Chemistry* 2005, V53(13), P5158-5163. Row, E. C.; *Organic & Biomolecular Chemistry* 2006, V4(8), P1604-1610.

H111	5,8-Dihydroxypsoralen	99%
[2-8°C]	7H-Furo[3,2-g][1]benzopyran-7-one, 4,9-dihydroxy-	
CAS	14348-23-3	25 mg £257
MF	C11H6O5	100 mg £719
FW	218.17	500 mg £3,018
	Natural linear Furocoumarin extracted from the fruits of <i>Cnidium monnieri</i> .	
	Xi (Irritant) R43	S36/37



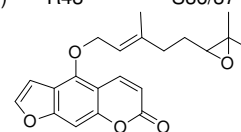
Reference
Cai, J-N. et al., J. Nat. Prod. 2000, 63, 485-488.
Wulff, H. et al. J. Med. Chem. 1998, 41, 4542-4549.

H209	6',7'-Epoxy,8-Geranylpsoralen	99%
[2-8°C]	7H-Furo[3,2-g][1]benzopyran-7-one, 9-[[[(2E)-5-(3,3-dimethyl-2-oxiranyl)-3-methyl-2-penten-1-yl]oxy]-]; 7H-Furo[3,2-g][1]benzopyran-7-one, 9-[[[(2E)-5-(3,3-dimethyloxiranyl)-3-methyl-2-pentenyl]oxy]- (9Cl); 7H-Furo[3,2-g][1]benzopyran-7-one, 9-[[[5-(3,3-dimethyloxiranyl)-3-methyl-2-pentenyl]oxy]-, (E)-	
CAS	143390-87-8	25 mg £357
MF	C21 H22 O5	100 mg £998
FW	354.4	500 mg £4,192
	Xi (Irritant) R43	S36/37



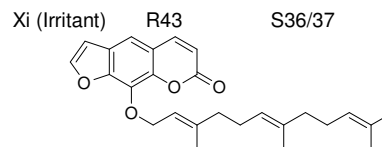
Reference
Adams, Michael; Mahringer, Anne; Bauer, Rudolf; Fricker, Gert; Efferth, Thomas. In vitro cytotoxicity and P-glycoprotein modulating effects of geranylated furocoumarins from *Tetradium daniellii*. *Planta Medica* (2007), 73(14), 1475-1478. Adams, Michael; Ettl, Sabine; Kunert, Olaf; Wube, Abraham Abebe; Haslinger, Ernst; Bucar, Franz; Bauer, Rudolf. Antimycobacterial activity of geranylated furocoumarins from *Tetradium daniellii*. *Planta Medica* (2006), 72(12), 1132-1135. Ziegler, Herta; Spittler, Gerhard. Coumarins and psoralens from Sicilian lemon oil (*Citrus limon* (L.) Burm. f.). *Flavour and Fragrance Journal* (1992), 7(3), 129-39.

H205	Epoxybergamottin*	99%
[2-8°C]	7H-Furo[3,2-g][1]benzopyran-7-one, 4-[[[(2E)-5-(3,3-dimethyloxiranyl)-3-methyl-2-pentenyl]oxy]- (9Cl); 7H-Furo[3,2-g][1]benzopyran-7-one, 4-[[[5-(3,3-dimethyloxiranyl)-3-methyl-2-pentenyl]oxy]-, (E)-	
CAS	206978-14-5	25 mg £257
MF	C21 H22 O5	100 mg £719
FW	354.4	500 mg £3,018
	Identified as a CYP3A4 inhibitor in grapefruit peel	
	Xi (Irritant) R43	S36/37



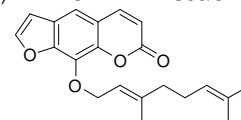
Reference
Wangenstein, H.; *European Journal of Clinical Pharmacology* 2003, V58(10), P663-668.
Manthey, John A.; *Journal of Agricultural and Food Chemistry* 2005, V53(13), P5158-5163.

H212	8-Farnesyloxypsoralen	99%
[2-8°C]	7H-Furo[3,2-g][1]benzopyran-7-one, 9-[[[3,7,11-trimethyl-2,6,10-dodecatrien-1-yl]oxy]-	
CAS	922165-61-5	25 mg £357
MF	C26 H30 O4	100 mg £998
FW	406.52	500 mg £4,192
	Xi (Irritant) R43	S36/37



Reference
Suzuki, Madoka; Nakagawa-Goto, Kyoko; Nakamura, Seikou; Tokuda, Harukumi; Morris-Natschke, Susan L.; Kozuka, Mutsuo; Nishino, Hoyoku; Lee, Kuo-Hsiung. Cancer preventive agents. Antitumor-promoting effects of coumarins and related compounds on Epstein-Barr virus activation and two-stage mouse skin carcinogenesis. *Pharmaceutical Biology* (Philadelphia, PA, United States) (2006), 44(3), 178-182.

H104	8-Geranopsoralen	99%
[2-8°C]	Xanthotoxol geranyl ether	
CAS	7437-55-0	25 mg £84
MF	C21H22O4	100 mg £235
FW	338.41	500 mg £985
	Furocoumarin from the roots of <i>Heracleum canescens</i> and <i>Heracleum pinnatum</i>	
	Xi (Irritant) R43	S36/37

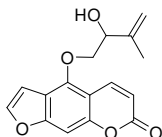


Reference
Kumar, R. et al. *Planta Med.* 1976, 30, 3, 291-294.

PURE PHYTOCHEMICALS

H216	Gosferol	99%
[2-8°C]	7H-Furo[3,2-g][1]benzopyran-7-one, 4-[(2-hydroxy-3-methyl-3-butenyl)oxy]-(9Cl)	
CAS	37551-62-5	25 mg £357
MF	C16 H14 O5	100 mg £998
FW	286.28	500 mg £4,192

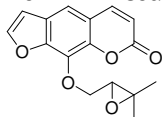
Xi (Irritant) R43 S36/37



Reference
Adebajo, Adeleke C.; Reisch, Johannes. Minor furocoumarins of *Murraya koenigii*. *Fitoterapia* (2000), 71(3), 334-337.

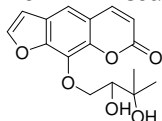
H022	Heraclenin*	99%
[2-8°C]	Prangenin; Prengenine; 7H-Furo(3,2-g)(1)benzopyran-7-one,9-(2,3-epoxy-3-methylbutoxy)-,(R)-(+)-	
CAS	35740-18-2	25 mg £196
MF	C16H14O5	100 mg £549
FW	286.28	500 mg £2,305

Xi (Irritant) R43 S36/37



H023	Heraclenol*	99%
[2-8°C]		
CAS	118407-74-2	25 mg £257
MF	C16 H16 O6	100 mg £719
FW	304.3	500 mg £3,018

Xi (Irritant) R43 S36/37



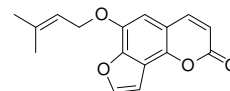
Reference
Niu, Xue-Mei; *Planta Medica* 2004, V70(6), P578-581.
Sultana, N.; *Journal of the Chemical Society of Pakistan* 2007, V29(2), P194-197.
Setzer, William N.; *Phytochemical Analysis* 2003, V14(1), P54-59.
Boyd, Derek R.; *Chemical Communications (Cambridge, United Kingdom)* 2002, (24), P3070-3071.

FUROCOUMARINS

H026	Heratomin	99%
[2-8°C]	6-Isopetenyloxyangelicin	
CAS	61265-06-3	25 mg £357
MF	C16H14O4	100 mg £998
FW	270.28	500 mg £4,192

Furocoumarin extracted from *Heracleum Thomsoni*. Inhibitor of insect cytochromes P450.

Xi (Irritant) R43 S36/37

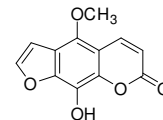


Reference
Gupta, B.D. et al. *Phytochem.* 1976, 15, 1319-1320.
Neal, J.J. et al. *Pesticide Biochemistry and Physiology*, 1994, 50, 1, 43-50.

H109	8-Hydroxybergapten	99%
[2-8°C]	7H-Furo[3,2-g][1]benzopyran-7-one, 9-hydroxy-4-methoxy-; 5-Benzofuranacrylic acid, 6,7-dihydroxy-4-methoxy-, d-lactone (6Cl,7Cl); 9-Hydroxy-4-methoxypsoralen	
CAS	1603-47-0	25 mg £357
MF	C12H8O5	100 mg £998
FW	232.19	500 mg £4,192

Linear Furocoumarin from *Angelica dahurica*, showed potent tyrosinase inhibition against mushroom tyrosinase

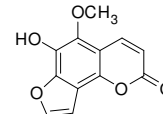
Xi (Irritant) R43 S36/37



Reference
Piao, X. L. et al. *Biological & Pharmaceutical Bulletin* 2004, 27, 7, 1144-1146

H108	6-Hydroxyisobergapten	99%
[2-8°C]	2H-Furo[2,3-h]-1-benzopyran-2-one, 6-hydroxy-5-methoxy- (8Cl,9Cl)	
CAS	24099-30-7	25 mg £357
MF	C12H8O5	100 mg £998
FW	232.19	500 mg £4,192

Xi (Irritant) R43 S36/37



Reference
Reed, M. W. et al. *Journal of Organic Chemistry* 1988, 53, 18, 4166-4171.

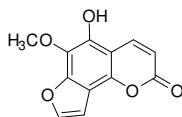
PURE PHYTOCHEMICALS

H107 5-Hydroxysphondin 99%

[2-8°C] 2H-Furo[2,3-h]-1-benzopyran-2-one, 5-hydroxy-6-methoxy- (8Cl,9Cl)

		25 mg	£357
MF	C12H8O5	100 mg	£998
FW	232.19	500 mg	£4,192

Xi (Irritant) R43 S36/37



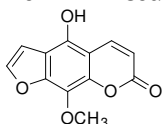
H110 5-Hydroxyxanthotoxin 99%

[2-8°C] 7H-Furo[3,2-g][1]benzopyran-7-one, 4-hydroxy-9-methoxy-; 4-Hydroxyisopimpinellin; 5-Hydroxy-8-methoxypsoralen;

CAS	7471-73-0	25 mg	£357
MF	C12H8O5	100 mg	£998
FW	232.19	500 mg	£4,192

A linear furocoumarin isolated from the seeds of *Peucedanum zenkeri*

Xi (Irritant) R43 S36/37



Reference

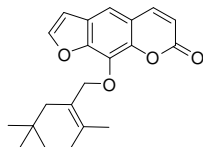
Ngwendson, J. Ngunde; Pharmazie 2003, V58, 8, 587-589. Mahran, M. R.; Egyptian Journal of Chemistry 1982, V24, 4-6, 401-411.

H030 Iliensin 99%

[2-8°C] 7H-Furo[3,2-g][1]benzopyran-7-one, 9-[(2,5,5-trimethyl-1-cyclohexen-1-yl)methoxy]-

CAS	54278-74-9	25 mg	£357
MF	C21 H22 O4	100 mg	£998
FW	338.4	500 mg	£4,192

Xi (Irritant) R43 S36/37



Reference

Paknikar, S. K.; Veeravalli, Jaya; Kirtany, J. K. Revised structures for iselin and iliensin and the identity of the former with archangelin. *Experientia* (1978), 34(5), 553.

FUROCOUMARINS

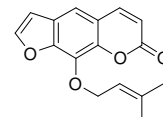
H105 Imperatorin 99%

[2-8°C] Ammidin; Marmelosin; Pentosalen; 8-Isopentenylloxypsoralen; 7H-Furo(3,2-g)(1)benzopyran-7-one,9((3-methyl-2-butenyl)oxy)-

CAS	482-44-0	25 mg	£196
MF	C16H14O4	100 mg	£549
FW	270.29	500 mg	£2,305

Naturally occurring furocoumarin from *Angelica dahurica* Benth et Hook, West African medicinal plant *Clausena anisata* and other plants. Inhibits HIV-1 replications through an Sp1-dependent pathway. Induce hepatic GSTs and potent inhibitor of P450 1A1/1B1. Tumor necrosis factor antagonist. In human lymphocyte cultures Imperatorin successively inhibited and accelerated cell proliferation. It showed slight clastogenic effect, the chromosome-damaging effect being expressed mainly in a doubling of the break rate. Shows hepatoprotective activity on tacrine-induced cytotoxicity in Hep G2 cells. Shows chemopreventive effects when administered orally on skin tumor initiation by 7,12-dimethylbenz[a]anthracene (DMBA). Activate adrenaline-induced lipolysis and activate ACTH-induced lipolysis.

Xi (Irritant) R43 S36/37



Reference

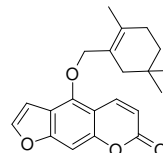
Abel, G. et al. *Planta Med.*, 1981, 42, 4, 333. Oh, H. et al., *Planta Med.* 2002, 68, 5, 463-464. Kleiner, H.E. *Chem. Res. Toxicol.* 2002, 15, 2, 226-235. Kleiner, H.E. *Carcinogenesis* 2002, 23, 10, 1667-1675. Sancho, R. et al. *The Journal of Biological Chemistry* 2004, 279, 36, 37349-3759. Kimura, Y. et al. *Planta Med.*, 1988, 45, 183-187.

H214 Iselin 99%

[2-8°C] 7H-Furo[3,2-g][1]benzopyran-7-one, 4-[(2,5,5-trimethyl-1-cyclohexen-1-yl)methoxy]-

CAS	54278-75-0	25 mg	£357
MF	C21 H22 O4	100 mg	£998
FW	338.4	500 mg	£4,192

Xi (Irritant) R43 S36/37



Reference

Paknikar, S. K.; Veeravalli, Jaya; Kirtany, J. K. Revised structures for iselin and iliensin and the identity of the former with archangelin. *Experientia* (1978), 34(5), 553.

PURE PHYTOCHEMICALS

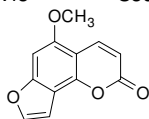
H033 Isobergapten 99%

[2-8°C] 5-Methoxy-2H-furo(2,3-h)-1-benzopyran-2-one;
2H-Furo(2,3-h)-1-benzopyran-2-one,5-methoxy-;
5-Methoxyangelicin

CAS	482-48-4	25 mg	£257
MF	C12H8O4	100 mg	£719
FW	216.19	500 mg	£3,018

Inhibits insect cytochrome P450

Xi (Irritant) R43 S36/37



Reference
Neal, J.J. et al., Pest. Biochem. Physio., 1994,
50, 1, 43-50.

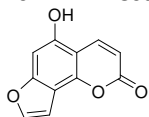
H034 Isobergaptol 99%

[2-8°C] 2H-Furo[2,3-h]-1-benzopyran-2-one, 5-hydroxy-
(8Cl,9Cl)

CAS	21339-45-7	25 mg	£357
MF	C11H6O4	100 mg	£998
FW	202.17	500 mg	£4,192

Natural Furocoumarin extracted from *Heracleum thomsoni*. And from the roots of *Angelica archangelica*.

Xi (Irritant) R43 S36/37



Reference
Chatterjee, A. et al. Indian Journal of Chemistry
1968, 6, 8, 415-422. Bates, R.B. et al.
Tetrahedron Letters 1972, 36, 3811-3814.

FUROCOUMARINS

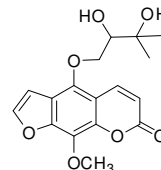
H038 Isobyakangelicin* 99%

[2-8°C]

CAS	50791-60-1	25 mg	£357
MF	C17 H18 O7	100 mg	£998
FW	334.33	500 mg	£4,192

Natural furocoumarins isolated in *Angelica dahurica*

Xi (Irritant) R43 S36/37



Reference
Zhang, Hai; Gong, Chungui; Lv, Lei; Xu, Yuanjie;
Zhao, Liang; Zhu, Zhenyu; Chai, Yifeng; Zhang,
Guoqing. Rapid separation and identification of
furocoumarins in *Angelica dahurica* by high-
performance liquid chromatography with diode-
array detection, time-of-flight mass spectrometry
and quadrupole ion trap mass spectrometry.
Rapid Communications in Mass Spectrometry
(2009), 23(14), 2167-2175. Kang, Jie; Zhou,
Lei; Sun, Jianghao; Han, Jian; Guo, De-An.
Chromatographic fingerprint analysis and
characterization of furocoumarins in the roots of
Angelica dahurica by HPLC/DAD/ESI-MSn
technique. Journal of Pharmaceutical and
Biomedical Analysis (2008), 47(4-5), 778-785.
Li, R.-T.; Zhao, A.-H.; Sheng, Y.-H.; Na, Z.; Sun,
H.-D. Chemical constituents from *Schisandra*
plena. Journal of Asian Natural Products
Research (2005), 7(6), 847-852.

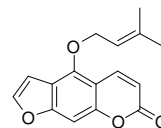
H037 Isoimperatorin 99%

[2-8°C] Iso-imperatorin; 7H-Furo(3,2-g)(1)benzopyran-7-
one,4-((3-methyl-2-butenyl)oxy)-

CAS	482-45-1	25 mg	£196
MF	C16H14O4	100 mg	£549
FW	270.28	500 mg	£2,305

Isoimperatorin is a tumor necrosis factor
antagonist isolated from *Glehnia* root or from
Poncirus trifoliata Raf.. Competitive inhibitor of
cytochrome P 450 1B1. Potent chemopreventive
agents against aflatoxin B1-inducible cytotoxicity
in H4IIE cells with a bifunctional effects on
glutathione S-transferase and CYP1A.

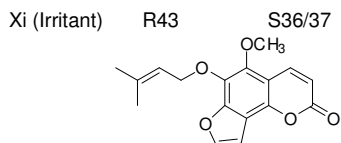
Xi (Irritant) R43 S36/37



Reference
Pokharel, Y.R. et al., Carcinogenesis 2006, 27,
12, 2483-2490. Mammen, J.S. et al.,
Pharmacogenet. Genomics 2005, 15, 3, 183-
188.

PURE PHYTOCHEMICALS

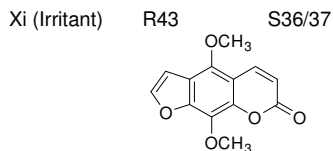
H106	6-Isopentenylisobergaptin	99%
[2-8°C]	2H-Furo[2,3-h]-1-benzopyran-2-one, 5-methoxy-6-[(3-methyl-2-butenyl)oxy]- (8Cl,9Cl)	
CAS	24099-29-4	25 mg £196
MF	C17H16O5	100 mg £549
FW	300.31	500 mg £2,305



Reference
Dreyer, D. L. J. Org. Chem., 35, 7, 1970, 2294-2297. Spencer, G.F. et al. J. Agric. Food Chem. 1987, 35, 803-805. Neal, J.J. et al. Pesticide Biochemistry and Physiology, 50, 1, 1994, 43-50.

H040	Isopimpinellin	99%
[2-8°C]	5,8-Dimethoxypsoralen; 4,9-Dimethoxy-7H-furo(3,2-g)(1)benzopyran-7-one	
CAS	482-27-9	25 mg £196
MF	C13H10O5	100 mg £549
FW	246.22	500 mg £2,305

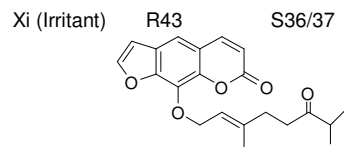
Naturally occurring Furocoumarin from *Ruta graveolens* and *Heracleum lanatum*. Strongly inhibits insulin-stimulated lipogenesis. Induces hepatic GSTs and is potent inhibitor of cytochrome P450 1A1/1B1. Oral administration of isopimpinellin, blocks DNA adducts formation and skin tumor initiation by 7,12-dimethylbenz[a]anthracene in SENCAR mice and in mouse mammary gland.



Reference
Kleiner, H.E. et al., Carcinogenesis, 2002, 23, 10, 1667-1675. Prince, M. et al., Carcinogenesis, 2006, 27, 6, 1204-1013. Mammen, J.S. et al., Pharmacogenet. Genomics, 2005, 15, 3, 183-188. Kimura, Y. et al. Planta Med. 1982, 45, 183-187.

FUROCOUMARINS

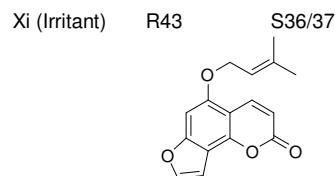
H211	6'-Keto,8-geranopsoralen	99%
[2-8°C]	7H-Furo[3,2-g][1]benzopyran-7-one, 9-[[[(2E)-3,7-dimethyl-6-oxo-2-octen-1-yl]oxy]-	
CAS	220391-49-1	25 mg £357
MF	C21 H22 O5	100 mg £998
FW	354.4	500 mg £4,192



Reference
Kitajima, Junichi; Okamura, Chieko; Ishikawa, Toru; Tanaka, Yasuko. New glycosides and furocoumarin from the *Glehnia littoralis* root and rhizoma. Chemical & Pharmaceutical Bulletin (1998), 46(12), 1939-1940.

H041	Lanatin	99%
[2-8°C]	2H-Furo[2,3-h]-1-benzopyran-2-one,5-[(3-methyl-2-butenyl)oxy]-(9Cl)	
CAS	76026-24-9	25 mg £196
MF	C16H14O4	100 mg £549
FW	270.28	500 mg £2,305

Natural Furocoumarin extracted from *Heracleum thomsoni*.

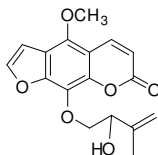


Reference
Banerjee, S.K. et al. Phytochemistry 1980, 19, 6, 1256-1258.

PURE PHYTOCHEMICALS

H047	Neobyakangelicol	99%
[2-8°C]	7H-Furo[3,2-g][1]benzopyran-7-one, 9-[(2-hydroxy-3-methyl-3-butenyl)oxy]-4-methoxy-, (-)-(9Cl); Neobyakangelicol	
CAS	35214-82-5	25 mg £357
MF	C17 H16 O6	100 mg £998
FW	318.33	500 mg £4,192

Xi (Irritant) R43 S36/37

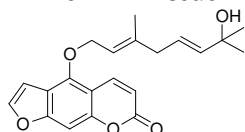


Reference

Guo, Lian-Qing; Taniguchi, Masahiko; Xiao, Yong-Qing; Baba, Kimiye; Ohta, Tomihisa; Yamazoe, Yasushi. Inhibitory effect of natural furanocoumarins on human microsomal cytochrome P450 3A activity. *Japanese Journal of Pharmacology* (2000), 82(2), 122-129. Mendez, J.; Castro-Poceiro, J. Furocoumarins from *Angelica pachycarpa*. *Phytochemistry* (Elsevier) (1983), 22(11), 2599-602. Ziegler, Herta; Spiteller, Gerhard. Coumarins and psoralens from Sicilian lemon oil (*Citrus limon* (L.) Burm. f.). *Flavour and Fragrance Journal* (1992), 7(3), 129-39.

H050	Notoptol	99%
[2-8°C]	7H-Furo[3,2-g][1]benzopyran-7-one, 4-[(7-hydroxy-3,7-dimethyl-2,5-octadienyl)oxy]-, (E,E)-; 7H-Furo[3,2-g][1]benzopyran-7-one, 4-[[[(2E,5E)-7-hydroxy-3,7-dimethyl-2,5-octadienyl]oxy]- (9Cl)]; Notoptol	
CAS	88206-49-9	25 mg £357
MF	C21 H22 O5	100 mg £998
FW	354.4	500 mg £4,192

Xi (Irritant) R43 S36/37



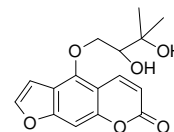
Reference

Wu, Shi-Biao; Zhao, Yun; Fan, Hui; Hu, Ying-He; Hamann, Mark T.; Peng, Jiang-Nan; Starks, Courtney M.; O'Neil-Johnson, Mark; Hu, Jin-Feng. New guaiane sesquiterpenes and furanocoumarins from *Notopterygium incisum*. *Planta Medica* (2008), 74(15), 1812-1817. Li, Yan-hui; Jiang, Shun-yuan; Guan, Yan-li; Liu, Xin; Zhou, Yi; Li, Li-Mei; Huang, Sheng-Xiong; Sun, Han-Dong; Peng, Shu-Lin; Zhou, Yan. Quantitative determination of the chemical profile of the plant material Qiang-huo by LC-ESI-MS-MS. *Chromatographia* (2006), 64(7-8), 405-411. Stevenson, Philip C.; Simmonds, Monique S. J.; Yule, Marianne A.; Veitch, Nigel C.; Kite, Geoffrey C.; Irwin, Dianne; Legg, Mike. Insect antifeedant furanocoumarins from *Tetradium daniellii*. *Phytochemistry* (Elsevier) (2003), 63(1), 41-46.

FUROCOUMARINS

H206	Oxypeucedanin hydrate*	99%
[2-8°C]	5-Benzofuranacrylic acid, 4-(2,3-dihydroxy-3-methylbutoxy)-6-hydroxy-, d-lactone (6Cl,7Cl); (±)-Oxypeucedanin hydrate; (±)-Prangol; 5-(2,3-Dihydroxy-3-methylbutoxy)psoralene	
CAS	24724-52-5	25 mg £257
MF	C16 H16 O6	100 mg £719
FW	304.3	500 mg £3,018

Xi (Irritant) R43 S36/37

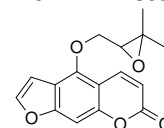


Reference

Design, synthesis and evaluation of furanocoumarin monomers as inhibitors of CYP3A4. Row, E. C.; Brown, S. A.; Stachulski, A. V.; Lennard, M. S. *Academic Unit of Clinical Pharmacology, Pharmacokinetics and Pharmacogenetics Group, Royal Hallamshire Hospital, University of Sheffield, Sheffield, UK. Organic & Biomolecular Chemistry* (2006), 4(8), 1604-1610.

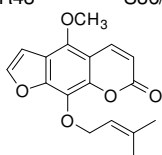
H054	Oxypeucedanin*	99%
[2-8°C]	Oxypeucedanin; 7H-Furo(3,2-g)(1)benzopyran-7-one,4-((3,3-dimethylxiranyl)methoxy)-; 7H-Furo[3,2-g][1]benzopyran-7-one, 4-(2,3-epoxy-3-methylbutoxy)- (8Cl); (±)-Oxypeucedanin; (RS)-Oxypeucedanin; 5-Epoxyisopentenylloxypsoralene	
CAS	737-52-0	25 mg £257
MF	C16H14O5	100 mg £719
FW	286.28	500 mg £3,018
Furanocoumarin from West African medicinal plant <i>Clausena anisata</i> .		

Xi (Irritant) R43 S36/37



PURE PHYTOCHEMICALS

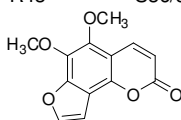
H061	Phellopterin	99%
[2-8°C]	7H-Furo(3,2-g)[1]benzopyran-7-one,4-methoxy-9-[(3-methyl-2-butenyl)oxy]-; 5-Benzofuranacrylic acid, 6-hydroxy-4-methoxy-7-[(3-methyl-2-butenyl)oxy]-, g-lactone (7Cl); 7H-Furo[3,2-g][1]benzopyran-7-one, 4-methoxy-9-[(3-methyl-2-butenyl)oxy]- (8Cl,9Cl); (5-Methoxy-8)-g,g-dimethylallyloxy(2',3',6,7-furanocoumarin)	
CAS	2543-94-4	25 mg £196
MF	C17H16O5	100 mg £549
FW	300.31	500 mg £2,305
	A naturally occurring furanocoumarin found in roots of <i>Angelica dahurica</i> and in <i>Seseli elatum</i> . Inhibitor of insect cytochromes P 450. Strongly inhibits the binding of [3H]diazepam to central nervous system benzodiazepine receptors in vitro. Activate adrenaline-induced lipolysis and activate ACTH-induced lipolysis.	
	Xi (Irritant) R43 S36/37	



Reference

Lee, K-L., J. Pharm. Sci. 1969, 58, 675-681.
Kokwaro, J.O., Planta Med. 1983, 47, 251-253.
Neal, J.J. et al., Pest. Biochem. Physiol. 1994, 50, 43-50. Bergendorff, O. et al. Phytochemistry 1997, 44, 6, 1121-1124. Kimura, Y. et al. Planta Med. 1988, 45, 183-187.

H062	Pimpinellin	99%
[2-8°C]	2-H-Furo(2,3-h)-1-benzopyran-2-one,5,6-dimethoxy-	
CAS	131-12-4	25 mg £196
MF	C13H10O5	100 mg £549
FW	246.22	500 mg £2,305
	Acts as antagonist of proteins with GABA receptor Activity	
	Xi (Irritant) R43 S36/37	

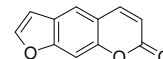


Reference

Kavli, G., et al., Contact Dermatitis, 1983, 9, 5, 365-366.

FUROCOUMARINS

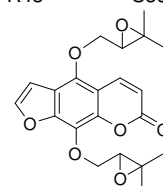
H065	Psoralen	99%
[2-8°C]	Ficuin; 7-H-Furo(3,2-g)(1)benzopyran-7-one;	
CAS	66-97-7	25 mg £196
MF	C11H6O3	100 mg £549
FW	186.17	500 mg £2,305
	A naturally occurring furocoumarin, extracted from <i>Psoralea corylifolia</i> and other plants where it appears to serve a defensive role. After photoactivation with UV radiation, it appears to bind DNA through single and double-stranded cross-linking. Anthelmintics, cross-linking reagent, photosensitising agent. Photochemical reagent for the investigation of nucleic acid structure and function.	
	Xn R22- (Harmful) 36/37/38 S26	



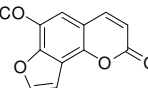
Reference

Cimino, G.D. et al., Annu. Rev. Biochem. 1985, 54, 1151. Kornhauser, A., et al., Science 1982, 217, 733-735. Inman, R.B. et al., J. Mol. Biol. 1987, 193, 377. Cullinane, C. et al. Cancer Res. 1998, 58, 1400-1404.

H213	Sen-Byakangelicol	99%
[2-8°C]	7H-Furo[3,2-g][1]benzopyran-7-one, 4,9-bis[(3,3-dimethyloxiranyl)methoxy]- (9Cl)	
CAS	77063-74-2	25 mg £357
MF	C21 H22 O7	100 mg £998
FW	386.4	500 mg £4,192
	Xi (Irritant) R43 S36/37	



H068	Sphondin	99%
[2-8°C]	6-Methoxy-2H-furo(2,3-h)-1-benzopyran-2-one; 2H-Furo(2,3-h)-1-benzopyran-2-one,6-methoxy-	
CAS	483-66-9	25 mg £257
MF	C12H8O4	100 mg £719
FW	216.19	500 mg £3,018
	A furanocoumarin derivative isolated from <i>Heracleum laciniatum</i> . Cause of phototoxicity in patient with vitiligo. Potent inhibitor of mouse coumarin7-hydrolase (COH) activity. Possess an inhibitory effect on IL-1b-induced COX-2 protein expression and PGE2 release in human pulmonary epithelial cell line (A549).	
	Xi (Irritant) R43 S36/37	



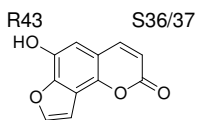
Reference

Kavli, G., et al., Contact Dermatitis, 1983, 9, 5, 365-366. Maenpaa, J. et al., Biochem. Pharmacol. 1993, 45, 5, 1035-1042. Yang, L-L. et al. Life Sciences 2002, 72, 199-213.

PURE PHYTOCHEMICALS

H027	Sphondinol	99%
[2-8°C]	2H-Furo[2,3-h]-1-benzopyran-2-one, 6-hydroxy-(9Cl) ; 5-Benzofuranacrylic acid, 4,7-dihydroxy-, d-lactone (7Cl); Heratomol; 6-hydroxy-angelicin	
CAS	61265-07-4	25 mg £357
MF	C11H6O4	100 mg £998
FW	202.16	500 mg £4,192

Xi (Irritant)



Reference

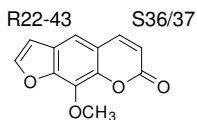
Gupta, B.D. et al. Phytochem. 1976, 15, 1319-1320.

H042	Xanthotoxin	99%
[2-8°C]	Methoxysalen; 8-Methoxypsoralen; 8-MOP; 9-Methoxyfuro[3,2-g][1]benzopyran-7-one; Ammoidin; Meladinin	
CAS	298-81-7	25 mg £48
MF	C12H8O4	100 mg £134
FW	216.19	500 mg £567

Xanthotoxin is a Furocoumarin found in several different plants, especially *Psoralea corylifolia*. It is used to increase skin pigmentation with sunlight in the treatment of depigmentation conditions such as vitiligo and may cause skin burns and liver damage. Xanthotoxin plus ultraviolet A (UVA) irradiation induces monoadducts and interstrand cross-links in DNA and therefore can be used to study DNA repair and recombination mechanisms. Cultured normal human melanocytes treated with 8-methoxypsoralen and irradiated with ultraviolet A (UVA) formed 8-methoxypsoralen-phospholipid photoadducts that could be substituted for diacylglycerol to activate protein kinase C in a cell-free system. Xanthotoxin is an inactivator of purified reconstituted cytochrome P450. It also inhibits substance P-induced histamine release from substance P-activated rat peritoneal mast cells by suppressing the rise in $[Ca^{2+}]$. Potent inhibitor of coumarin 7-hydrolase (COH) activity in mice in vivo and also in human liver microsomes.

Xn

(Harmful)



Reference

Loutfy, M.A. et al., Anal. Profiles Drug Subst. 1980, 9, 455. Tessman, J.W. et al. Biochem. 1985, 24, 1669. Maenpaa, J. et al., Biochem. Pharmacol. 1993, 45, 5, 1035-1042. Diawara, M.M. et al., J. Biochem Mol. Toxicol. 1999, 13, (3-4), 195-203.

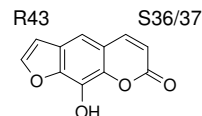
FUROCOUMARINS

H087	Xanthotoxol	99%
[2-8°C]	8-Hydroxypsoralen; Psoralen, 8-hydroxy-; 7H-Furo(3,2-g)(1)benzopyran-7-one, 9-hydroxy-	
CAS	2009-24-7	25 mg £84
MF	C11H6O4	100 mg £235
FW	202.17	500 mg £985

Drug/Therapeutic Agent
Radiation-sensitizing agent
Serotonin antagonist

Xanthotoxol exhibited significant sedative and tranquilizing activity in laboratory animals and showed a good margin of safety. Calcium antagonist on isolated guinea pig atria. Inhibited the proliferation of TCTC cells in vitro.

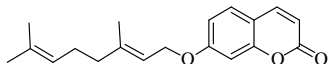
Xi (Irritant)



Reference

Sethi, O.P. et al., J. Ethnopharmacol 1992, 36, 3, 239-247. Gawron, A. et al., Pol. J. Pharmacol Pharm. 1992, 44, 1, 51-57. Liu, J. et al., Zhong Yao Cai (J. Chinese Medicinal Material) 2005, 28, 4, 319-321.

H302	Auraptene	99%
	2H-1-Benzopyran-2-one, 7-[(3,7-dimethyl-2,6-octadienyl)oxy]-, (E)-; 2H-1-Benzopyran-2-one, 7-[[[(2E)-3,7-dimethyl-2,6-octadienyl]oxy]- (9C)]; Coumarin, 7-(geranyloxy)- (6Cl); Coumarin, 7-[(3,7-dimethyl-2,6-octadienyl)oxy]-, (E)- (8Cl); (E)-7-Geranoxycoumarin; 7-Geranyloxycoumarin; Auraptene; Auraptene	
[2-8°C]		
CAS	495-02-3	25 mg £84
MF	C19 H22 O3	100 mg £235
FW	298.38	500 mg £985
	Coumarin found in Grapefruit Peel Oil, Inhibitors of Human Cytochrome P450 3A4	

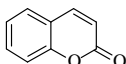


Reference

Jeong, Seon Hwa; Archives of Pharmacal Research 2006, V29(12), P1119-1124. Abulrob, Abedel-Nasser; Phytochemistry (Elsevier) 2004, V65(22), P3021-3027. Napolitano, H. B.; Brazilian Journal of Medical and Biological Research 2004, V37(12), P1847-1852. Liu, Li; Chemical & Pharmaceutical Bulletin 2004, V52(11), P1295-1301. Manthey, John A.; Journal of Agricultural and Food Chemistry 2005, V53(13), P5158-5163. Row, E. C.; Organic & Biomolecular Chemistry 2006, V4(8), P1604-1610. Bohme, Horst; Berichte der Deutschen Chemischen Gesellschaft [Abteilung] B: Abhandlungen 1939, V72B, P773-9. Bohme, Horst; Arch. Pharm. 1938, V276, P482-8. Mohamed, T. K.; Asian Journal of Chemistry 2004, V16(3-4), P1753-1764. Ogihara, Kazuhito; Phytochemistry 1989, V28(4), P1061-7.

H303	Coumarin	99%
	2H-1-Benzopyran-2-one ; Coumarin (8Cl); 1,2-Benzopyrone; 2-Propenoic acid, 3-(2-hydroxyphenyl)-, d-lactone; 5,6-Benzo-2-pyrone; Benzo-a-pyrone; Coumarinic anhydride; NSC 8774; Rattex; Tonka bean camphor; cis-o-Coumarinic acid lactone; o-Hydroxycinnamic acid lactone	
[2-8°C]		
CAS	91-64-5	25 mg £48
MF	C9 H6 O2	100 mg £134
FW	146.15	500 mg £567

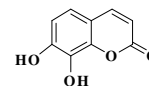
Xn harmful R22 S36



Reference

Turner, W. V.; Journal of Organic Chemistry 1974, V39(13), P1935-7. Sojka, Stanley A.; Journal of Organic Chemistry 1975, V40(8), P1175-8. Von Ohe, Peter C.; Chemical Research in Toxicology 2005, V18(3), P536-555. Wall, Monroe E.; Journal of Natural Products 1988, V51(6), P1148-52. Dittmer, Donald C.; Journal of Organic Chemistry 2005, V70(12), P4682-4686. Rubottom, George M.; Journal of Organic Chemistry 1983, V48(25), P4940-4. Yang, Juan; Journal of Chemical Physics 2006, V125(3), P034308/1-034308/9.

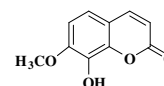
H304	Daphnetin	99%
	Coumarin, 7,8-dihydroxy- (7Cl,8Cl); Daphnetin (6Cl); 7,8-Dihydroxycoumarin; Daphnetol; NSC 633563; Ruixiangsu	
[2-8°C]		
CAS	486-35-1	25 mg £48
MF	C9 H6 O4	100 mg £134
FW	178.14	500 mg £567
	Coumarin found in Rhododendron lepidotum L., in lavender (Lavandula spp.)	



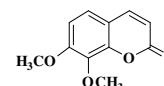
Reference

Liu, Zhen-Ling; Bulletin of the Korean Chemical Society 2004, V25(7), P1078-1080. Liu, Jiaqin; Macromolecular Bioscience 2004, V4(5), P520-525. Preat, Julien; Chemical Physics Letters 2005, V415(1-3), P20-24.

H306	Daphnetin 7-methyl ether	99%
	Coumarin, 8-hydroxy-7-methoxy- (7Cl,8Cl); Herniarin, 8-hydroxy- (6Cl); 7-Methoxy-8-hydroxycoumarin; 8-Hydroxy-7-methoxycoumarin; Daphnetin 7-methyl ether, 2H-1-Benzopyran-2-one, 8-hydroxy-7-methoxy-	
[2-8°C]		
CAS	19492-03-6	25 mg £48
MF	C10 H8 O4	100 mg £134
FW	192.17	500 mg £567
	Coumarin from Daphne retusa, Daphne odora, Artemisia carvifolia Wall.	



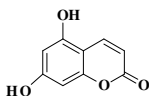
H305	Daphnetin dimethyl ether	99%
	Coumarin, 7,8-dimethoxy- (6Cl,7Cl,8Cl); 7,8-Dimethoxycoumarin; Daphnetin dimethyl ether, 2H-1-Benzopyran-2-one, 7,8-dimethoxy-	
[2-8°C]		
CAS	2445-80-9	25 mg £48
MF	C11 H10 O4	100 mg £134
FW	206.2	500 mg £567
	Coumarin from Japanese wormwood (Artemisia japonica), Daphne giraldii Nitsche.	



Reference

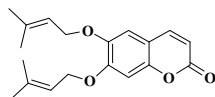
Guenther, Harald; Organic Magnetic Resonance 1975, V7(7), P339-44. Macias, F. A.; Magnetic Resonance in Chemistry 1989, V27(9), P892-4. Razdan, T. K.; Phytochemistry 1987, V26(7), P2063-9.

H307	5,7-Dihydroxycoumarin	99%
	Coumarin, 5,7-dihydroxy- (6Cl,7Cl,8Cl); 5,7-Dihydroxy-2H-chromen-2-one; 5,7-Dihydroxycoumarin; NSC 108415 ; 2H-1-Benzopyran-2-one, 5,7-dihydroxy-	
[2-8°C]		
CAS	2732-18-5	25 mg £196
MF	C9 H6 O4	100 mg £549
FW	178.14	500 mg £2,305

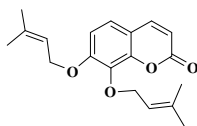


Reference
Trost, Barry M.; Journal of the American Chemical Society 2003, V125(15), P4518-4526. Sun, Jingyun; Zhongguo Zhongyao Zazhi 2002, V27(5), P366-367. Wulff, Heike; Journal of Medicinal Chemistry 1998, V41(23), P4542-4549. Kalyanam, N.; Synthetic Communications 2004, V34(10), P1909-1914. Melliou, Eleni; Journal of Natural Products 2005, V68(1), P78-82.

H308	6,7-Diisoprenyloxycoumarin	99%
	Coumarin, 6,7-bis[(3-methyl-2-butenyl)oxy]- (8Cl)	
[2-8°C]		
CAS	19723-20-7	25 mg £196
MF	C19 H22 O4	100 mg £549
FW	314.38	500 mg £2,305

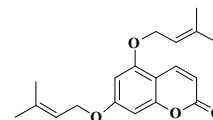


H309	7,8-Diisoprenyloxycoumarin	99%
	2H-1-Benzopyran-2-one, 7,8-bis[(3-methyl-2-buten-1-yl)oxy]- ; 2H-1-Benzopyran-2-one, 7,8-bis[(3-methyl-2-butenyl)oxy]- (9Cl)	
[2-8°C]		
CAS	104311-21-9	25 mg £196
MF	C19 H22 O4	100 mg £549
FW	314.38	500 mg £2,305
	Show antitumor-promoting effects on Epstein-Barr virus activation	



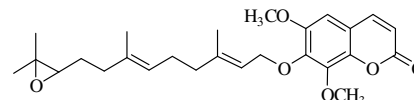
Reference
Suzuki, Madoka; Nakagawa-Goto, Kyoko; Nakamura, Seikou; Tokuda, Harukumi; Morris-Natschke, Susan L.; Kozuka, Mutsuo; Nishino, Hoyoku; Lee, Kuo-Hsiung. Cancer preventive agents. Antitumor-promoting effects of coumarins and related compounds on Epstein-Barr virus activation and two-stage mouse skin carcinogenesis. Pharmaceutical Biology (Philadelphia, PA, United States) (2006), 44(3), 178-182.

H338	5,7-Diisoprenyloxycoumarin	99%
	2H-1-Benzopyran-2-one, 5,7-bis[(3-methyl-2-butenyl)oxy]- (9Cl)	
[2-8°C]		
CAS	35590-38-6	25 mg £196
MF	C19 H22 O4	100 mg £549
FW	314.38	500 mg £2,305
	Show antiproliferative effect on several cancer cell lines	



Reference
Kawaii, Satoru; Tomono, Yasuhiko; Ogawa, Kazunori; Sugiura, Minoru; Yano, Masamichi; Yoshizawa, Yuko; Ito, Chihiro; Furukawa, Hiroshi. Antiproliferative effect of isopentenylated coumarins on several cancer cell lines. Anticancer Research (2001), 21(3B), 1905-1911.

H346	6,8-Dimethoxy-7-epoxyfarnesylcoumarin	99%
	2H-1-Benzopyran-2-one, 7-[[9-(3,3-dimethyloxiranyl)-3,7-dimethyl-2,6-nonadienyl]oxy]-6,8-dimethoxy-, (E,E)-(-)-(9Cl); (-)-Epoxyfarnachrol; Epoxyfarnachrol	
[2-8°C]		
CAS	87688-13-9	25 mg £357
MF	C26 H34 O6	100 mg £998
FW	442.55	500 mg £4,192
	Naturally occurring sesquiterpene coumarin ethers from Achillea ochroleuca	

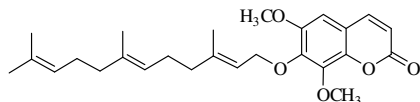


Reference
Greger, H.; Hofer, O.; Robien, W. Naturally occurring sesquiterpene coumarin ethers. Part III. New sesquiterpene coumarin ethers from Achillea ochroleuca. Carbon-13-NMR of isofraxidin-derived open-chain and bicyclic sesquiterpene ethers. Journal of Natural Products (1983), 46(4), 510-16. Greger, Harald; Hofer, Otmar; Robien, Wolfgang. Naturally occurring sesquiterpene-coumarin ethers. Part 4. Types of sesquiterpene-coumarin ethers from Achillea ochroleuca and Artemisia tripartita. Phytochemistry (Elsevier) (1983), 22(9), 1997-2003. Hofer, Otmar; Greger, Harald. Naturally occurring sesquiterpene-coumarin ethers. VIII. New sesquiterpene-coumarin ethers from Anthemis cretica. Liebigs Annalen der Chemie (1985), (6), 1136-44. Jandl, Brigitte; Hofer, Otmar; Kalchhauser, Hermann; Greger, Harald. Open chain sesquiterpene coumarin ethers and coniferyl alcohol-4-O-farnesyl ether from Achillea ochroleuca. Natural Product Letters (1997), 11(1), 17-24.

PURE PHYTOCHEMICALS

COUMARINS

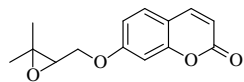
H345	6,8-Dimethoxy-7-farnesyloxycoumarin	99%
[2-8°C]	2H-1-Benzopyran-2-one, 6,8-dimethoxy-7-[[3,7,11-trimethyl-2,6,10-dodecatrienyl]oxy]-, (E,E)-; Farnochrol	
CAS	84652-32-4	25 mg £357
MF	C26 H34 O5	100 mg £998
FW	426.55	500 mg £4,192
	Naturally occurring sesquiterpene-coumarin ethers from Achillea and Artemisia species	



Reference

Greger, Harald; Hofer, Otmar; Nikiforov, Alexej. New sesquiterpene-coumarin ethers from Achillea and Artemisia species. *Journal of Natural Products* (1982), 45(4), 455-61.
 Greger, Harald; Hofer, Otmar; Robien, Wolfgang. Naturally occurring sesquiterpene-coumarin ethers. Part 4. Types of sesquiterpene-coumarin ethers from Achillea ochroleuca and Artemisia tripartita. *Phytochemistry* (Elsevier) (1983), 22(9), 1997-2003.
 Greger, Harald; Hofer, Otmar. Naturally-occurring sesquiterpene-coumarin ethers. Part 7. Sesquiterpene-coumarin ethers and polyacetylenes from Brocchia cinerea. *Phytochemistry* (Elsevier) (1985), 24(1), 85-8.
 Jandl, Brigitte; Hofer, Otmar; Kalchhauser, Hermann; Greger, Harald. Open chain sesquiterpene coumarin ethers and coniferyl alcohol-4-O-farnesyl ether from Achillea ochroleuca. *Natural Product Letters* (1997), 11(1), 17-24.

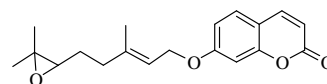
H320	7-(2,3-epoxy-3-methoxybutoxy)-coumarin	99%
[2-8°C]		
CAS	106894-34-2	25 mg £196
MF	C14 H14 O4	100 mg £549
FW	246.26	500 mg £2,305
	Coumarin found in Coleonema species	



Reference

Gray, Alexander I.; Meegan, Ciaran J.; O'Callaghan, Noreen B. Coumarins from two Coleonema species. *Phytochemistry* (1986), 26(1), 257-60.

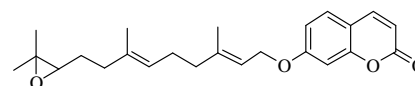
H310	Epoxyauraptene	99%
[2-8°C]	2H-1-Benzopyran-2-one, 7-[[5-(3,3-dimethyloxiranyl)-3-methyl-2-pentenyl]oxy]-, (E)-; (±)-6',7'-Epoxyauraptene; (±)-Epoxyauraptene; 6',7'-Epoxy-7-geranyloxycoumarin	
CAS	36414-00-3	25 mg £196
MF	C19 H22 O4	100 mg £549
FW	314.38	500 mg £2,305
	Coumarin found in Lime and Grapefruit Oils	



Reference

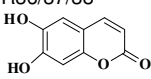
Feger, Wolfgang; Brandauer, Herbert; Gabris, Paulina; Ziegler, Herta. Nonvolatiles of Commercial Lime and Grapefruit Oils Separated by High-Speed Countercurrent Chromatography. *Journal of Agricultural and Food Chemistry* (2006), 54(6), 2242-2252.
 Abulrob, Abedel-Nasser; Suller, Marc T. E.; Gumbleton, Mark; Simons, Claire; Russell, A. Denver. Identification and biological evaluation of grapefruit oil components as potential novel efflux pump modulators in methicillin-resistant Staphylococcus aureus bacterial strains. *Phytochemistry* (Elsevier) (2004), 65(22), 3021-3027.
 Tatum, James H.; Berry, Robert E. Coumarins and psoralens in grapefruit peel oil. *Phytochemistry* (Elsevier) (1979), 18(3), 500-2.

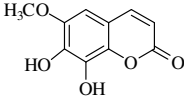
H342	Epoxyumbelliprenin	99%
[2-8°C]	2H-1-Benzopyran-2-one, 7-[[[(2E,6E)-9-(3,3-dimethyloxiranyl)-3,7-dimethyl-2,6-nonadienyl]oxy]- (9C1); 2H-1-Benzopyran-2-one, 7-[[[9-(3,3-dimethyloxiranyl)-3,7-dimethyl-2,6-nonadienyl]oxy]-, (E,E)-]; 2H-1-Benzopyran-2-one, 7-[[[9-(3,3-dimethyloxiranyl)-3,7-dimethyl-2,6-nonadienyl]oxy]-, (E,E)-	
CAS	83988-95-8	25 mg £357
MF	C24 H30 O4	100 mg £998
FW	382.5	500 mg £4,192
	Shows squalene-hopene cyclase inhibition activities	



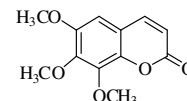
Reference

Cravotto, Giancarlo; Balliano, Gianni; Tagliapietra, Silvia; Oliaro-Bosso, Simonetta; Nano, Gian Mario. Novel squalene-hopene cyclase inhibitors derived from hydroxycoumarins and hydroxyacetophenones. *Chemical & Pharmaceutical Bulletin* (2004), 52(10), 1171-1174.
 Cravotto, Giancarlo; Balliano, Gianni; Robaldo, Bruna; Oliaro-Bosso, Simonetta; Chimichi, Stefano; Boccalini, Marco. Farnesyloxycoumarins, a new class of squalene-hopene cyclase inhibitors. *Bioorganic & Medicinal Chemistry Letters* (2004), 14(8), 1931-1934.

H312	Esculetin	99%
	Coumarin, 6,7-dihydroxy- (8Cl); Esculetin (6Cl); 6,7-Dihydroxy-2-benzopyrone; 6,7-Dihydroxycoumarin; Aesculetin; Esculetine; Cichorigenin; Cichoriin aglycon; Esculetol; Esculin aglycon; NSC 26428	
[2-8°C]		
CAS	305-01-1	25 mg £48
MF	C9 H6 O4	100 mg £134
FW	178.14	500 mg £567
	Natural coumarin, found to induce apoptosis in human leukemia U937 cells	
	Xi irritant R36/37/38	
		
	Reference	
	Wang, Weiping; Journal of Chromatography, A 2007, V1148(1), P108-114. Liu, Renmin; Journal of Chromatography, A 2005, V1072(2), P195-199. Du Toit, Karen; Bioorganic & Medicinal Chemistry 2005, V13(7), P2561-2568. Razdan, T. K.; Phytochemistry 1987, V26(7), P2063-9. Preat, Julien; Chemical Physics Letters 2005, V415(1-3), P20-24. Bai, Lifei; Spectrochimica Acta, Part A: Molecular and Biomolecular Spectroscopy 2006, V65A(3-4), P863-868. Hinou, J.; Plantes Medicinales et Phytotherapie 1988, V22(2), P98-103. Zhang, Lu; Chemical Communications (Cambridge, United Kingdom) 2007, (19), P1891-1893.	

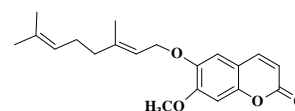
H313	Fraxetin (6-OMe, 7,8-OH)	99%
	2H-1-Benzopyran-2-one, 7,8-dihydroxy-6-methoxy-; Coumarin, 7,8-dihydroxy-6-methoxy- (7Cl,8Cl); Fraxetin (6Cl); 6-Methoxy-7,8-dihydroxycoumarin; 7,8-Dihydroxy-6-methoxycoumarin; Fratexin; Fraxetol	
[2-8°C]		
CAS	574-84-5	25 mg £48
MF	C10 H8 O5	100 mg £134
FW	208.17	500 mg £567
	Natural coumarin, found to inhibits the induction of anti-Fas IgM, tumor necrosis factor-.alpha. and interleukin-1.beta.-mediated apoptosis by Fas pathway inhibition in human osteoblastic cell line MG-63	
	R20/21/22	
	Xn harmful R36/37/38	
		
	Reference	
	Yasuda, Takaaki; Journal of Natural Products 2006, V69(5), P755-757. Liu, Renmin; Journal of Chromatography, A 2005, V1072(2), P195-199. Gorecki, P.; Herba Polonica 1988, V34(1-2), P43-50. Kumar, Sandeep; Phytochemistry 1988, V27(2), P636-8.	

H314	Fraxetin dimethylether (6,7,8-OMe)	99%
	2H-1-Benzopyran-2-one, 6,7,8-trimethoxy-; Coumarin, 6,7,8-trimethoxy- (6Cl,8Cl); 6,7,8-Trimethoxy-2H-1-benzopyran-2-one; 6,7,8-Trimethoxycoumarin; Fraxetin dimethyl ether	
[2-8°C]		
CAS	6035-49-0	25 mg £84
MF	C12 H12 O5	100 mg £235
FW	236.22	500 mg £985
	Found in the fruits of <i>Garcinia multiflora</i> , the leaves of <i>Cryptocarya nigra</i> (Lauraceae)	



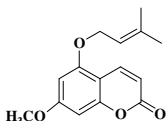
Reference
Gorecki, P.; Herba Polonica 1988, V34(1-2), P43-50. Goh, S. H.; Phytochemistry 1990, V29(5), P1704-6. Mbwambo, Zakaria H.; Journal of Natural Products 1996, V59(11), P1051-1055. Preat, Julien; Chemical Physics Letters 2005, V415(1-3), P20-24.

H315	6-Geranyloxy-7-methoxy-coumarin	99%
	2H-1-Benzopyran-2-one, 6-[[[(2E)-3,7-dimethyl-2,6-octadienyl]oxy]-7-methoxy- (9Cl); 2H-1-Benzopyran-2-one, 6-[[[(3,7-dimethyl-2,6-octadienyl)oxy]-7-methoxy-, (E)-; 7-Methoxy-6-geranyloxycoumarin	
[2-8°C]		
CAS	74156-47-1	25 mg £196
MF	C20 H24 O4	100 mg £549
FW	328.41	500 mg £2,305
	Found in <i>Haplophyllum pedicellatum</i> , <i>Severinia buxifolia</i>	



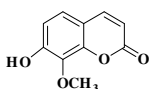
Reference
7-Methoxy-6-geranyloxycoumarin as a new component from *Haplophyllum pedicellatum*. Aбышев, A. Z.; Gashimov, N. F. Leningr. Sanit.-Gig. Med. Inst., Ashkhabad, USSR. Khimiya Prirodnikh Soedinenii (1979), (6), 846.

H317	Herniarin (5-isoprenyloxy-7-methoxycoumarin)	99%
	2H-1-Benzopyran-2-one, 7-methoxy-5-[(3-methyl-2-butenyloxy)- (9Cl)]; Coumarin, 7-methoxy-5-[(3-methyl-2-butenyloxy)- (7Cl)]; Herniarin, 5-(3-methyl-2-butenyloxy)- (6Cl); 5-Isopentenyl-7-methoxycoumarin; 5-Prenyloxy-7-methoxycoumarin; 7-Methoxy-5-prenyloxy-7-methoxycoumarin	
[2-8°C]		
CAS	35590-41-1	25 mg £196
MF	C15 H16 O4	100 mg £549
FW	260.29	500 mg £2,305
	Coumarin found in Citrus.	



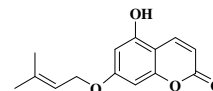
Reference
 Dugo, Paola; Piperno, Anna; Romeo, Roberto; Cambria, Maria; Russo, Marina; Carnovale, Caterina; Mondello, Luigi. Determination of Oxygen Heterocyclic Components in Citrus Products by HPLC with UV Detection. *Journal of Agricultural and Food Chemistry* (2009), 57(15), 6543-6551. Kang, So Young; Kim, Young Choong. Neuroprotective coumarins from the root of *Angelica gigas*: structure-activity relationships. *Archives of Pharmacal Research* (2007), 30(11), 1368-1373.

H318	Hydrangetin (7-OH, 8OMe)	99%
	Coumarin, 7-hydroxy-8-methoxy- (7Cl,8Cl); Umbelliferone, 8-methoxy- (6Cl); 7-Hydroxy-8-methoxycoumarin; Daphnetin 8-methyl ether; Hydrangetin	
[2-8°C]		
CAS	485-90-5	25 mg £196
MF	C10 H8 O4	100 mg £549
FW	192.17	500 mg £2,305
	Coumarin found in <i>Sinacalia tangutica</i> , <i>Daphne retusa</i> .	



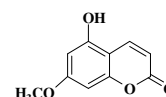
Reference
 Liu, Zhen-Ling; *Bulletin of the Korean Chemical Society* 2004, V25(7), P1078-1080. Gandini, Andrea; *Gazzetta Chimica Italiana* 1940, V70, P611-15.

H340	5-Hydroxy-7-isoprenyloxy-7-methoxycoumarin	99%
	2H-1-Benzopyran-2-one, 5-hydroxy-7-[(3-methyl-2-buten-1-yl)oxy]-; 2H-1-Benzopyran-2-one, 5-hydroxy-7-[(3-methyl-2-butenyl)oxy]- (9Cl); Anisocoumarin B	
[2-8°C]		
CAS	35590-40-0	25 mg £196
MF	C14 H14 O4	100 mg £549
FW	246.26	500 mg £2,305
	Prenylated Coumarin found in <i>Pterocarpus santalinus</i> , in <i>Clausena anisata</i> , shows antiproliferative effect on several cancer cell lines.	



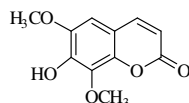
Reference
 Kawai, Satoru; Tomono, Yasuhiko; Ogawa, Kazunori; Sugiura, Minoru; Yano, Masamichi; Yoshizawa, Yuko; Ito, Chihiro; Furukawa, Hiroshi. Antiproliferative effect of isopentenylated coumarins on several cancer cell lines. *Anticancer Research* (2001), 21(3B), 1905-1911. Ngadjui, Bonaventure Tchaleu; Ayafor, Johnson Foyere; Sondengam, Beibam L.; Connolly, Joseph D. Coumarins from *Clausena anisata*. *Phytochemistry* (1989), 28(2), 585-9. Singh, Seema; Paliwal, M. K.; Singh, J. A new prenylated coumarin from *Pterocarpus santalinus*. *Fitoterapia* (1993), 64(1), 90.

H336	5-Hydroxy-7-methoxycoumarin	99%
	Coumarin, 5-hydroxy-7-methoxy- (8Cl); Herniarin, 5-hydroxy- (6Cl); 5-Hydroxy-7-methoxycoumarin	
[2-8°C]		
CAS	23053-61-4	25 mg £196
MF	C10 H8 O4	100 mg £549
FW	192.17	500 mg £2,305
	Constituents of expressed West Indian lime oil, found in lemon oil.	



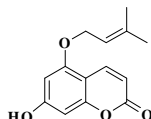
Reference
 Caldwell, A. G.; Jones, E. R. H. Constituents of expressed West Indian lime oil. *Journal of the Chemical Society* (1945), 540-3. Stanley, W. L.; Vannier, S. H. Chemical composition of lemon oil. I. Isolation of a series of substituted coumarins. *Journal of the American Chemical Society* (1957), 79 3488-91. Oh, Hyuncheol; Ko, Eun-Kyung; Jun, Jung-Yang; Oh, Myung-Hoon; Park, Sung-Uk; Kang, Ki-Hong; Lee, Ho-Sub; Kim, Youn-Chul. Hepatoprotective and free radical scavenging activities of prenylflavonoids, coumarin, and stilbene from *Morus alba*. *Planta Medica* (2002), 68(10), 932-934. Yue, Mei-E.; Li, Ya; Shi, Yan-Ping. Determination of six bioactive components of *Saussurea katochaete* by capillary electrophoresis. *Biomedical Chromatography* (2007), 21(4), 376-381.

H319	Isofraxidin	99%
	2H-1-Benzopyran-2-one, 7-hydroxy-6,8-dimethoxy- ; Coumarin, 7-hydroxy-6,8-dimethoxy- (7Cl,8Cl); Umbelliferone, 6,8-dimethoxy- (6Cl); 6,8-Dimethoxy-7-hydroxycoumarin; Isofraxidin; NSC 324637;	
[2-8°C]	Phytodolor	
CAS	486-21-5	25 mg £107
MF	C11 H10 O5	100 mg £299
FW	222.2	500 mg £1,285
	Coumarin found in <i>Sarcandra glabra</i> , in celery.	



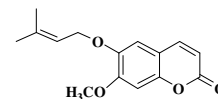
Reference
 Hwang, Seon Woo; *Heterocycles* 2005, V65(8), P1963-1966. Kanlayavattanukul, Mayuree; *Heterocycles* 2003, V61, P183-187. Gorecki, P.; *Herba Polonica* 1988, V34(1-2), P43-50. Nishibe, Sansei; *Chemical & Pharmaceutical Bulletin* 1990, V38(6), P1763-5. Zhou, Xiaoguang; *Analytical Sciences* 2007, V23(6), P705-711.

H341	5-Isoprenyloxy,7-hydroxy-coumarin	99%
	2H-1-Benzopyran-2-one, 7-hydroxy-5-[(3-methyl-2-butenyl)oxy]- (9Cl); Coumarin, 7-hydroxy-5-[(3-methyl-2-butenyl)oxy]- (8Cl); 7-Hydroxy-5-prenyloxycoumarin	
[2-8°C]		
CAS	33899-44-4	25 mg £196
MF	C14 H14 O4	100 mg £549
FW	246.26	500 mg £2,305
	Coumarin found in Citrus plants	



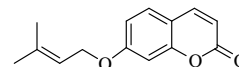
Reference
 Kawaii, Satoru; Tomono, Yasuhiko; Ogawa, Kazunori; Sugiura, Minoru; Yano, Masamichi; Yoshizawa, Yuko; Ito, Chihiro; Furukawa, Hiroshi. Antiproliferative effect of isopentenylated coumarins on several cancer cell lines. *Anticancer Research* (2001), 21(3B), 1905-1911. Ito, Chihiro; Fujiwara, Kazuko; Kajita, Mayumi; Juichi, Motoharu; Takemura, Yuko; Suzuki, Yoshiko; Tanaka, Kiyoko; Omura, Mitsuo; Furukawa, Hiroshi. New coumarins from Citrus plants. *Chemical & Pharmaceutical Bulletin* (1991), 39(10), 2509-13. McHale, D.; Sheridan, J. B. Detection of adulteration of cold-pressed lemon oil. *Developments in Food Science* (1988), 18(Flavors Fragrances), 525-35.

H322	6-Isoprenyloxy-7-methoxycoumarin	99%
	2H-1-Benzopyran-2-one, 7-methoxy-6-[(3-methyl-2-butenyl)oxy]- (9Cl) ; Coumarin, 7-methoxy-6-[(3-methyl-2-butenyl)oxy]- (8Cl)	
[2-8°C]		
CAS	16712-77-9	25 mg £196
MF	C15 H16 O4	100 mg £549
FW	260.29	500 mg £2,305
	Coumarin found in <i>Carduus tenuiflorus</i>	



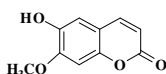
Reference
 Cardona, Luz; Garcia, Begona; Pedro, Jose R.; Perez, Jose. 6-Prenyloxy-7-methoxycoumarin, a coumarin-hemiterpene ether from *Carduus tenuiflorus*. *Phytochemistry* (1992), 31(11), 3989-91.

H321	7-Isoprenyloxycoumarin	99%
	2H-1-Benzopyran-2-one, 7-[(3-methyl-2-butenyl)oxy]- (9Cl); Coumarin, 7-[(3-methyl-2-butenyl)oxy]- (7Cl,8Cl); 7-(3',3'-Dimethylallyloxy)coumarin; 7-(3,3-Dimethylallyloxy)coumarin; 7-(3-Methyl-2-butenyloxy)coumarin; 7-(Isopentenyl)oxy)coumarin; 7-Hydroxycoumarin dimethylallyl ether; 7-O-Prenylumbelliferone; NSC 267697; O-Prenylumbelliferone	
[2-8°C]		
CAS	10387-50-5	25 mg £196
MF	C14 H14 O3	100 mg £549
FW	230.26	500 mg £2,305
	Coumarin found in <i>Haplopappus deserticola</i> , <i>Asterolasia phebalioides</i> (Rutaceae), <i>Baccharis pedunculata</i> , <i>Citrus limon</i> (L.) Burm. f.	



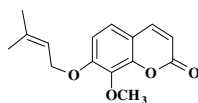
Reference
 Chang, Ching-Jer; *Journal of Organic Chemistry* 1977, V42(8), P1337-40. Ziegler, Herta; Spiteller, Gerhard. Coumarins and psoralens from Sicilian lemon oil (*Citrus limon* (L.) Burm. f.). *Flavour and Fragrance Journal* (1992), 7(3), 129-39. Latip, Jalifah; *Phytochemistry* 1999, V51(1), P107-110. Row, E. C.; *Organic & Biomolecular Chemistry* 2006, V4(8), P1604-1610. Hernandez Galan, Rosario; *Heterocycles* 1989, V29(2), P297-300. Beauchamp, Philip S.; *Journal of Essential Oil Research* 2007, V19(2), P117-124. Epifano, Francesco; Pelucchini, Caroline; Curini, Massimo; Genovese, Salvatore. Insights on novel biologically active natural products: 7-isopentenylloxycoumarin. *Natural Product Communications* (2009), 4(12), 1755-1760. Genovese, Salvatore; Epifano, Francesco; Curini, Massimo; Dudra-Jastrzebska, Monika; Luszczki, Jarogniew J. Prenyloxyphenylpropanoids as a novel class of anticonvulsive agents. *Bioorganic & Medicinal Chemistry Letters* (2009), 19(18), 5419-5422.

H323	Isoscooletin	99%
[2-8°C]	2H-1-Benzopyran-2-one, 6-hydroxy-7-methoxy-; Coumarin, 6-hydroxy-7-methoxy- (7Cl,8Cl); Herniarin, 6-hydroxy- (6Cl); 6-Hydroxy-7-methoxycoumarin; 7-Methoxysesuletin; Esculetin, 7-methyl ether; Isoscooletin	
CAS	776-86-3	25 mg £84
MF	C10 H8 O4	100 mg £235
FW	192.17	500 mg £985
	In <i>Rhododendron concinnum</i> , <i>Angelica purpuraeifolia</i> ,	



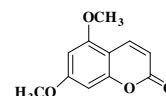
Reference
Zolek, Teresa; Solid State Nuclear Magnetic Resonance 2003, V23(1-2), P77-87. Du Toit, Karen; Bioorganic & Medicinal Chemistry 2005, V13(7), P2561-2568. Razdan, T. K.; Phytochemistry 1987, V26(7), P2063-9. Lin, Longze; Zhiwu Xuebao 1988, V30(6), P670-2. Jeong, Gil-Saeng; Biological & Pharmaceutical Bulletin 2007, V30(7), P1340-1343. Mbwambo, Zakaria H.; Journal of Natural Products 1996, V59(11), P1051-1055.

H324	Lacinartin (7iso,8MeO)	99%
[2-8°C]	2H-1-Benzopyran-2-one, 8-methoxy-7-[(3-methyl-2-butenyl)oxy]- (9Cl)	
CAS	73155-42-7	25 mg £196
MF	C15 H16 O4	100 mg £549
FW	260.29	500 mg £2,305
	Coumarin hemiterpene ethers found in <i>Artemisia</i> species,	



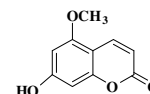
Reference
Harayama, Takashi; Heterocycles 2001, V54(1), P319-328. Genovese, Salvatore; Epifano, Francesco; Curini, Massimo; Dudra-Jastrzebska, Monika; Luszczki, Jarogniew J. Prenyloxyphenylpropanoids as a novel class of anticonvulsive agents. Bioorganic & Medicinal Chemistry Letters (2009), 19(18), 5419-5422. Szabo, Geza; Greger, Harald; Hofer, Otmar. Coumarin hemiterpene ethers from *Artemisia* species. Phytochemistry (Elsevier) (1985), 24(3), 537-41.

H325	Limettin	99%
[2-8°C]	2H-1-Benzopyran-2-one, 5,7-dimethoxy-; Citropten (6Cl); Coumarin, 5,7-dimethoxy- (7Cl,8Cl); 5,7-Dimethoxy-2H-chromen-2-one; 5,7-Dimethoxycoumarin; Citraptene; Citroptene; Limetin; Limettin	
CAS	487-06-9	25 mg £48
MF	C11 H10 O4	100 mg £134
FW	206.2	500 mg £567
	In Citrus species.	



Reference
Guenther, Harald; Organic Magnetic Resonance 1975, V7(7), P339-44. Trost, Barry M.; Journal of the American Chemical Society 2003, V125(15), P4518-4526. Kotani, Masashi; Synthesis 2004, (9), P1466-1470. Aoki, Shinya; Bulletin of the Chemical Society of Japan 2005, V78(3), P468-472. Fillion, Eric; Journal of Organic Chemistry 2006, V71(1), P409-412. Belfield, Kevin D.; Journal of Physical Organic Chemistry 2003, V16(1), P69-78. Buiarelli, Francesca; Annali di Chimica (Rome, Italy) 2002, V92(4), P363-372. Oyamada, Juzo; Tetrahedron 2006, V62(29), P6918-6925. Heyes, Reginald G.; Journal of the Chemical Society 1936, P1831-2. Simonsen, Henrik Toft; Phytotherapy Research 2004, V18(7), P542-545. Preat, Julien; Chemical Physics Letters 2005, V415(1-3), P20-24.

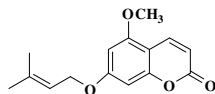
H337	5-Methoxy-7-hydroxycoumarin	99%
[2-8°C]	Coumarin, 7-hydroxy-5-methoxy- (7Cl,8Cl); Umbelliferone, 5-methoxy- (6Cl); 5-Methoxy-7-hydroxycoumarin; 7-Hydroxy-5-methoxycoumarin	
CAS	3067 10 5	25 mg £196
MF	C10 H8 O4	100 mg £549
FW	192.17	500 mg £2,305
	Found in <i>Angelica pubescens</i> Maxim	



Reference
Kayser, Oliver; Kolodziej, Herbert. Antibacterial activity of simple coumarins. Structural requirements for biological activity. Zeitschrift fuer Naturforschung, C: Journal of Biosciences (1999), 54(3/4), 169-174.

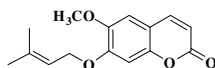
PURE PHYTOCHEMICALS

H328	5-Methoxy-7-isoprenyloxycoumarin	99%
[2-8°C]	2H-1-Benzopyran-2-one, 5-methoxy-7-[(3-methyl-2-butenyl)oxy]- (9CI) ; 5-Methoxy-7-(3,3-dimethylallyloxy)coumarin	
CAS	30779-96-5	25 mg £196
MF	C15 H16 O4	100 mg £549
FW	260.29	500 mg £2,305



Reference
Glowniak, Kazimierz; Mroczek, Tomasz; Zabza, Andrzej; Cierpicki, Tomasz. Dep. Pharmacognosy, Med. Univ., Lublin, Pol. Pharmaceutical Biology (Lisse, Netherlands) (2000), 38(4), 308-312.

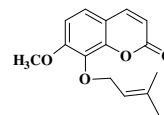
H329	6-Methoxy-7-isoprenyloxycoumarin	99%
[2-8°C]		
CAS	13544-37-1	25 mg £196
MF	C15 H16 O4	100 mg £549
FW	260.29	500 mg £2,305
	Coumarins found in the roots of <i>Acritopappus confertus</i> , <i>Melicope borbonica</i> ,	



Reference
Riveiro, Maria E.; Maes, Dominick; Vazquez, Ramiro; Vermeulen, Monica; Mangelinckx, Sven; Jacobs, Jan; Debenedetti, Silvia; Shayo, Carina; De Kimpe, Norbert; Davio, Carlos. Toward establishing structure-activity relationships for oxygenated coumarins as differentiation inducers of promonocytic leukemic cells. *Bioorganic & Medicinal Chemistry* (2009), 17(18), 6547-6559. Zhu, Ying; Zhang, Li-Xia; Zhao, Yan; Huang, Guo-Du. Unusual sesquiterpene lactones with a new carbon skeleton and new acetylenes from *Ajania przewalskii*. *Food Chemistry* (2009), Volume Date 2010, 118(2), 228-238. Stein, Ana Cristina; Alvarez, Sandra; Avancini, Cesar; Zacchino, Susana; von Poser, Gilsane. Antifungal activity of some coumarins obtained from species of *Pterocaulon* (Asteraceae). *Journal of Ethnopharmacology* (2006), 107(1), 95-98.

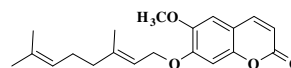
COUMARINS

H330	7-Methoxy-8-isoprenyloxycoumarin	99%
[2-8°C]		
CAS	76474-93-6	25 mg £196
MF	C15 H16 O4	100 mg £549
FW	260.29	500 mg £2,305
	Coumarin hemiterpene ether found in <i>Artemisia</i> species	



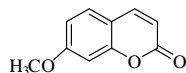
Reference
Harayama, Takashi; *Heterocycles* 2001, V54(1), P319-328. de Oliveira, P. E. S.; *Pharmaceutical Biology* (Philadelphia, PA, United States) 2005, V43(1), P53-57. Szabo, Geza; Greger, Harald; Hofer, Otmir. Coumarin hemiterpene ethers from *Artemisia* species. *Phytochemistry* (Elsevier) (1985), 24(3), 537-41. Barua, Nabin C.; Sharma, Ram P.; Madhusudanan, K. P.; Thyagarajan, Gopalakrishna; Herz, Werner. Coumarins in *Artemisia caruifolia*. *Phytochemistry* (Elsevier) (1980), 19(10), 2217-18.

H326	6-Methoxyaurapten	99%
[2-8°C]		
CAS	28587-43-1	25 mg £196
MF	C20 H24 O4	100 mg £549
FW	328.41	500 mg £2,305
	Coumarin found in the root bark of <i>Feronia elephantum</i>	



Reference
Ito, Chihiro; *Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry* (1972-1999) 1990, (7), P2047-55. Maes, Dominick; *Heterocycles* 2007, V74, P927-930. Talapatra, S. K.; Chaudhuri, M. K.; Talapatra, B. Coumarins on the root bark of *Feronia elephantum*. *Phytochemistry* (Elsevier) (1973), 12(1), 236-7.

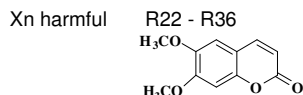
H327	7-Methoxycoumarin	99%
	Coumarin, 7-methoxy- (8Cl); Herniarin (6Cl); Umbelliferone, methyl ether (6Cl); 7-Methoxychromen-2-one; 7-Methoxycoumarin; Ayapanin; Methylumbelliferone;	
[2-8°C]		
CAS	531-59-9	25 mg £48
MF	C10 H8 O3	100 mg £134
FW	176.17	500 mg £567
	Found in Citrus aurantifolia Swingle	



Reference

Lapper, Roy D.; Tetrahedron Letters 1974, (49/50), P4293-6. Guenther, Harald; Organic Magnetic Resonance 1975, V7(7), P339-44. Cussans, N. J.; Tetrahedron 1975, V31(21), P2719-26. Gottlieb, Hugo E.; Journal of the Chemical Society, Perkin Transactions 2: Physical Organic Chemistry (1972-1999) 1979, (4), P435-7. Sankar, S. S.; Organic Magnetic Resonance 1982, V19(4), P222-4. Kruse, Lawrence I.; Journal of the American Chemical Society 1985, V107(19), P5435-42. Trost, Barry M.; Journal of the American Chemical Society 2003, V125(15), P4518-4526. Gutierrez, Alicia B.; Phytochemistry 1988, V27(12), P3871-4. Mambo, Veronique; Journal de la Societe Ouest-Africaine de Chimie 2005, V10(19), P63-68,68a, 68b, 68c, 68e, 68f, 69-79. Kotani, Masashi; Synthesis 2004, (9), P1466-1470. Oyamada, Juzo; Tetrahedron 2006, V62(29), P6918-6925. Collins, David J.; Australian Journal of Chemistry 1989, V42(8), P1235-48. Molyneux, Russell J.; Australian Journal of Chemistry 1974, V27(12), P2697-702. Desai, Vidya G.; Journal of Chemical Research, Synopses 2003, (10), P628-629. Paredes, L.; Phytochemistry 1988, V27(10), P3329-30. Karthikeyan, S.; Journal of Organic Chemistry 2006, V71(17), P6409-6413. Pashkova, Anna; Analytical Chemistry 2004, V76(15), P4550-4557. Wagner, Brian D.; Journal of Inclusion Phenomena and Macrocyclic Chemistry 2003, V47(3-4), P187-192. Azuma, Kentaro; Photochemical & Photobiological Sciences 2003, V2(4), P443-449.

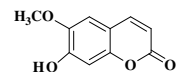
H332	Scoparone	99%
	Coumarin, 6,7-dimethoxy- (6Cl,7Cl,8Cl); 6,7-Dimethoxycoumarin; 6,7-Dimethylesculetin; Aesculetin dimethyl ether; Escoparone; Esculetin 6,7-dimethyl ether; Esculetin dimethyl ether; NRB 03190; O,O-Dimethylesculetin; O-Methylisoscopoletin; O-Methylscopoletin; Scoparon; Scoparone; Scopoletin methyl ether; Scopoletin monomethyl ether	
[2-8°C]		
CAS	120-08-1	25 mg £84
MF	C11 H10 O4	100 mg £235
FW	206.2	500 mg £985
	Found in Herba artemisiae scopariae	



Reference

Fillion, Eric; Journal of Organic Chemistry 2006, V71(1), P409-412. Ma, C. H.; Ke, W.; Sun, Z. L.; Peng, J. Y.; Li, Z. X.; Zhou, X.; Fan, G. R.; Huang, C. G. Large-scale isolation and purification of scoparone from Herba artemisiae scopariae by high-speed counter-current chromatography. Chromatographia (2006), 64(1-2), 83-87. Du Toit, Karen; Bioorganic & Medicinal Chemistry 2005, V13(7), P2561-2568. Razdan, T. K.; Phytochemistry 1987, V26(7), P2063-9. Simonsen, Henrik Toft; Phytotherapy Research 2004, V18(7), P542-545. Zhang, Guangnong; Analytica Chimica Acta 2006, V571(1), P17-24.

H333	Scopoletin	99%
	Coumarin, 7-hydroxy-5-methoxy- (7Cl,8Cl); Umbelliferone, 5-methoxy- (6Cl); 5-Methoxy-7-hydroxycoumarin; 7-Hydroxy-5-methoxycoumarin; 2H-1-Benzopyran-2-one, 7-hydroxy-5-methoxy-	
[2-8°C]		
CAS	92-61-5	25 mg £48
MF	C10 H8 O4	100 mg £134
FW	192.17	500 mg £567
	Found in the stem bark of Plumeria rubra Linn.	



Reference

Trost, Barry M.; Journal of the American Chemical Society 2003, V125(15), P4518-4526. Xie, Lan; Journal of Medicinal Chemistry 1999, V42(14), P2662-2672. Howell, Wm. N.; Journal of the Chemical Society 1937, P293-4. Ahluwalia, V. K.; National Academy Science Letters (India) 1978, V1(10), P369. Oda, Kazuaki; Heterocycles 2005, V65(8), P1985-1988.

H335 Umbelliferone 99%

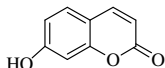
Coumarin, 7-hydroxy- (7Cl,8Cl); 7-Hydroxy-2-chromenone; 7-Hydroxy-2H-1-benzopyran-2-one; 7-Hydroxy-2H-chromen-2-one; 7-Hydroxycoumarin; 7-Hydroxylcoumarin; 7-Oxycoumarin; Hydrangin; Hydrangine; NSC 19790; Skimmetin; Skimmetine; Umbelliferon; Umbelliferone

[2-8°C]

CAS	93-35-6	25 mg	£48
MF	C9 H6 O3	100 mg	£134
FW	162.14	500 mg	£567

Coumarin, antioxidant found in *Acacia nilotica* (L.) Willd. Ex. Del.

Xi irritant R36/37/38



Reference

Razdan, T. K.; *Phytochemistry* 1987, V26(7), P2063-9. Friesen, J. Brent; *Journal of Chromatography, A* 2007, V1151(1-2), P51-59. Hano, Yoshio; *Heterocycles* 1990, V31(7), P1339-44. Taylor, Richard T.; *Synthesis* 1982, (8), P672-3. Chawla, H. Mohindra; *Bulletin de la Societe Chimique de France* 1989, (1), P82-7. El-Lakany, Abdalla M.; *Natural Product Sciences* 2004, V10(2), P69-73. Bandara, B. M. Ratnayake; *Phytochemistry* 1990, V29(1), P297-301. Ukhin, L. Yu.; *Chemistry of Natural Compounds (Translation of Khimiya Prirodnykh Soedinenii)* 2003, V39(5), P482-488. Valizadeh, H.; *Journal of Chemical Research, Synopses* 2003, (11), P718-720. Kosiova, Ivana; *Tetrahedron* 2006, V63(2), P312-320.

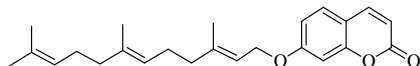
H334 Umbelliprenin 99%

2H-1-Benzopyran-2-one, 7-[[[(2E,6E)-3,7,11-trimethyl-2,6,10-dodecatrien-1-yl]oxy]-; 2H-1-Benzopyran-2-one, 7-[[[(3,7,11-trimethyl-2,6,10-dodecatrienyl)oxy]-, (E,E)-; 2H-1-Benzopyran-2-one, 7-[[[(2E,6E)-3,7,11-trimethyl-2,6,10-dodecatrienyl]oxy]- (9Cl); Coumarin, 7-[[[(3,7,11-trimethyl-2,6,10-dodecatrienyl)oxy]-, (E,E)- (8Cl); Umbelliprenin (6Cl)

[2-8°C]

CAS	23838-17-7	25 mg	£196
MF	C24 H30 O3	100 mg	£549
FW	366.5	500 mg	£2,305

Coumarin found in the roots of *Ferula persica*



Reference

Murphy, Eavan M.; *Biochemical Systematics and Ecology* 2004, V32(2), P203-207. Ngwendson, J. Ngunde; *Pharmazie* 2003, V58(8), P587-589. Iranshahi, Mehrdad; *Zeitschrift fuer Naturforschung, C: Journal of Biosciences* 2004, V59(7/8), P506-508. Constantinos; *Organic Letters* 2007, V9(4), P583-586.

PURE PHYTOCHEMICALS

Molecular formula	Name	CAS number	Page
C9 H6 O2	Coumarin	91-64-5	13
C9 H6 O3	Umbelliferone	93-35-6	22
C9 H6 O4	Daphnetin	486-35-1	13
C9 H6 O4	5,7-Dihydroxycoumarin	2732-18-5	14
C9 H6 O4	Esculetin	305-01-1	16
C10 H8 O3	7-Methoxycoumarin	531-59-9	21
C10 H8 O4	Daphnetin 7-methyl ether	19492-03-6	13
C10 H8 O4	Hydrangetin	485-90-5	17
C10 H8 O4	5-Hydroxy-7-methoxycoumarin	23053-61-4	17
C10 H8 O4	Isoscapoletin	776-86-3	19
C10 H8 O4	5-Methoxy-7-hydroxycoumarin	3067 10 5	19
C10 H8 O4	Scopoletin	92-61-5	21
C10 H8 O5	Fraxetin	574-84-5	16
C11 H6 O3	Angelicin	523-50-2	3
C11 H6 O3	Psoralen	66-97-7	11
C11 H6 O4	Bergaptol	486-60-2	4
C11 H6 O4	Isobergaptol	21339-45-7	8
C11 H6 O4	Sphondinol	61265-07-4	12
C11 H6 O4	Xanthotoxol	2009-24-7	12
C11 H6 O5	5,6-Dihydroxyangelicin	857019-99-9	5
C11 H6 O5	5,8-Dihydroxypsoralen	14348-23-3	6
C11 H10 O4	Daphnetin dimethyl ether	2445-80-9	13
C11 H10 O4	Limettin	487-06-9	19
C11 H10 O4	Scoparone	120-08-1	21
C11 H10 O5	Isofraxidin	486-21-5	18
C12 H8 O4	Bergapten	484-20-8	4
C12 H8 O4	Isobergapten	482-48-4	8
C12 H8 O4	Sphondin	483-66-9	12
C12 H8 O4	Xanthotoxin	298-81-7	12
C12 H8 O5	8-Hydroxybergapten	1603-47-0	7
C12 H8 O5	6-Hydroxyisobergapten	24099-30-7	7
C12 H8 O5	5-Hydroxysphondin	-	7
C12 H8 O5	5-Hydroxyxanthotoxin	7471-73-0	7
C12 H12 O5	Fraxetin dimethylether	6035-49-0	16
C13 H10 O5	Isopimpinellin	482-27-9	9
C13 H10 O5	Pimpinellin	131-12-4	11
C14 H14 O3	7-Isoprenyloxycoumarin	10387-50-5	18
C14 H14 O4	7-(2,3-epoxy-3-methoxybutoxy)-coumarin	106894-34-2	15
C14 H14 O4	5-Hydroxy-7-isoprenyloxycoumarin	35590-40-0	17
C14 H14 O4	5-Isoprenyloxy,7-hydroxycoumarin	33899-44-4	18
C15 H16 O4	Herniarin	35590-41-1	17
C15 H16 O4	6-Isoprenyloxy-7-methoxycoumarin	16712-77-9	18
C15 H16 O4	Lacinartin (7iso,8MeO)	73155-42-7	19
C15 H16 O4	5-Methoxy-7-isoprenyloxycoumarin	30779-96-5	20
C15 H16 O4	6-Methoxy-7-isoprenyloxycoumarin	13544-37-1	20
C15 H16 O4	7-Methoxy-8-isoprenyloxycoumarin	76474-93-6	20
C16 H14 O4	Alloimperatorin	642-05-7	3
C16 H14 O4	Alloisimperatorin	35214-83-6	3
C16 H14 O4	Heratomin	61265-06-3	7

MOLECULAR FORMULA INDEX

C16 H14 O4	Imperatorin	482-44-0	8
C16 H14 O4	Isoimperatorin	482-45-1	9
C16 H14 O4	Lanatin	76026-24-9	10
C16 H14 O5	Gosferol	37551-62-5	7
C16 H14 O5	Heraclenin	35740-18-2	7
C16 H14 O5	Oxypeucedanin	737-52-0	11
C16 H16 O6	Oxypeucedanin hydrate	24724-52-5	10
C17 H16 O5	Cnidilin	14348-22-2	5
C17 H16 O5	6-Isopentenylxy isobergaptin	24099-29-4	9
C17 H16 O5	Phellopterin	2543-94-4	11
C17 H16 O6	Byakangelicol*	61046-59-1	4
C17 H16 O6	Neobyakangelicol	35214-82-5	10
C17 H18 O6	Alatol	50927-97-4	3
C17 H18 O7	Byakangelicin	19573-01-4	4
C17 H18 O7	Isobyakangelicin	50791-60-1	9
C19 H22 O3	Auraptene	495-02-3	13
C19 H22 O4	6,7-Diisoprenyloxy coumarin	19723-20-7	14
C19 H22 O4	7,8-Diisoprenyloxy coumarin	104311-21-9	14
C19 H22 O4	5,7-Diisoprenyloxy coumarin	35590-38-6	14
C19 H22 O4	Epoxyauraptene	36414-00-3	15
C20 H24 O4	6-Geranyloxy-7-methoxy-coumarin	74156-47-1	16
C20 H24 O4	6-Methoxyauraptin	28587-43-1	20
C21 H22 O4	Bergamottin	7380-40-7	4
C21 H22 O4	8-Geranopsoralen	7437-55-0	6
C21 H22 O4	Iliensin	54278-74-9	8
C21 H22 O4	Iselin	54278-75-0	8
C21 H22 O5	Cnidicin	14348-21-1	5
C21 H22 O5	6',7'-Epoxy,8-Geranyl psoralen	143390-87-8	6
C21 H22 O5	Epoxybergamottin	206978-14-5	6
C21 H22 O5	6'-Keto,8-geranopsoralen	220391-49-1	10
C21 H22 O5	6'-Ketobergamottin	267418-72-4	10
C21 H22 O5	Notoptol	88206-49-9	10
C21 H22 O7	Sen-Byakangelicol	77063-74-2	11
C21 H24 O6	6',7'-Dihydroxy,8-Geranyl psoralen	889112-17-8	5
C21 H24 O6	6',7'-Dihydroxybergamottin	145414-76-2	5
C24 H30 O3	Umbelliprenin	23838-17-7	22
C24 H30 O4	Epoxyumbelliprenin	83988-95-8	15
C26 H30 O4	8-Farnesyloxypsoralen	922165-61-5	6
C26 H34 O5	6,8-Dimethoxy-7-farnesyloxycoumarin	84652-32-4	15
C26 H34 O6	6,8-Dimethoxy-7-epoxyfarnesyloxycoumarin	87688-13-9	14