KAMPOYAKI NATURAL
PRODUCTS BIO-CHEMISTRY

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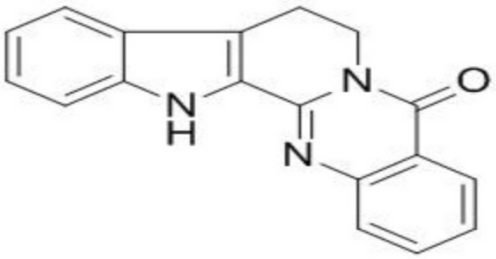
ISO 9001:2015 Certification
ISO 16128-1 ISO 16128-2-2017 EPA www.epa.gov/greenchemistry

RUTAECARPINE

Datasheet
Kampoyaki Novo-Drug Screening Libraries 4th Edition (Revised in July, 2016)

PRODUCT INFORMATION



Name: Rutaecarpine
Catalog No.: KRN97337
Cas No.: 84-26-4
Purity: >=98%
M.F: $C_{18}H_{13}N_3O$
M.W: 287.3
Physical Description: Yellow powder
Synonyms: 8,13,13b,14-tetrahydroindolo[2',3':3,4]pyrido[2,1-b]quinazolin-5(7H)-one.

POTENTIAL USES

1. Reference standards; **2.** Pharmacological research; **3.** Food and cosmetic research; **4.** Synthetic precursor compounds; **5.** Active Pharmaceutical Intermediates (API) & Fine Chemicals; **6.** Ingredient in supplements, beverages; **7.** Agricultural research; **8.** Botanical Bio- Allelopathy, **9.** Natural Botanical Molecules as Botanical Bio-Herbicides **10.** As Botanical Bio- Anti-Blight Fungicides

SOURCE

The fruits of Evodia rutaecarpa (Juss.) Benth.

BIOLOGICAL ACTIVITY OR INHIBITORS

Rutaecarpine, evodiamine, and dehydroevodiamine are quinazolinocarboline alkaloids isolated from a traditional Chinese medicine, Evodia rutaecarpa, rutaecarpine is a potent inhibitor of CYP1A2 in both mouse and human liver microsome.[1]
Rutaecarpine inhibits COX-2-dependent conversion of exogenous arachidonic acid to PGE2 in a dose-dependent manner by the COX-2-transfected HEK293 cells, it inhibits neither PLA2 and COX-1 activity nor COX-2 protein and mRNA expression up to the concentration of 30 microM in BMMC, indicating that rutaecarpine directly inhibits COX-2 activity; it shows in vivo anti-inflammatory activity on rat lambda-carrageenan induced paw edema by intraperitoneal administration, suggests that the anti-inflammatory activity of rutaecarpine could be attributed at least in part by inhibition of COS-2.[2]
Rutaecarpine and evodiamine have positive inotropic and chronotropic effects on the guinea-pig isolated right atria, possible involvement of vanilloid receptors.[3] Rutaecarpine exerts both antihypertensive and anti-platelet effects through stimulating the synthesis and release of CGRP in spontaneously hypertensive rats (SHR), and calcitonin gene-related peptide (CGRP)-mediated anti-platelet effect is related to inhibiting the release of platelet-derived tissue factor (TF), it may be a potential therapeutic agent for arterial thrombosis.[4,5]
Rutaecarpine has vasorelaxing action, it has direct paradoxical effects on intracellular calcium concentration of vascular smooth muscle and endothelial cells.[6]
Rutaecarpine enhances preservation with cardioplegia in guinea-pig hearts and that the protective effects of rutaecarpine are due to stimulation of endogenous CGRP release via activating vanilloid receptors.[7]
Rutaecarpine protects the gastric mucosa against injury induced by acetylsalicylic acid (ASA)and stress, and that the gastroprotective effect of rutaecarpine is related to a stimulation of endogenous calcitonin gene-related peptide (CGRP) release via activation of the vanilloid receptor.[8]
Rutaecarpine and evodiamine have inhibitory effect on LIGHT-induced migration in human monocytes, the inhibitory effect and the activation of chemokine receptor (CCR) 1, CCR2, ICAM-1, ERK, and p38 MAPK occurs via decreased ROS production and NADPH oxidase activation, indicates that they have the potential for use as an anti-atherosclerosis agent.[9]
Rutaecarpine inhibits ultraviolet A-induced reactive oxygen species generation, resulting in the enhanced expression of matrix metalloproteinase (MMP)-2 and MMP-9 in human skin cells, suggests that it may be useful in the prevention of ultraviolet A-induced photoaging.[10]
A single bolus intravenous injection of rutaecarpine from 20 mg/kg might cause immunosuppressive effects, and that rutaecarpine-induced immunosuppression may be mediated, at least in part, through the inhibition of cytokine production and cell cycle arrest in G0 + G1 phase, and causes possibly by mechanisms associated with metabolic activation.[11]

SOLVENT

Pyridine, Methanol, Ethanol, Hot water, etc.

HPLC METHOD (12)

Mobile phase:	n-Hexane–2-Propanol–Ethanol =70:20:10 ;
Flow rate:	0.7 ml/min;
Column temperature:	Room Temperature;
The wave length of determination:	225 nm.

STORAGE

2-8°C, Protected from air and light, refrigerate or freeze.

REFERENCES

[1] Ueng Y F, Jan W C, Lin L C, et al. Drug Metab. Dispos., 2002, 30(3):349-53.
[2] Moon T C, Murakami M, Kudo I, et al. Inflamm. Res., 1999, 48(12):621-5.
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[5] Li D, Peng J, Xin H Y, et al. Peptides, 2008, 29(10):1781-8.
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[10] Beak S M, Paek S Y, Lee Y S, et al. Eur. J. Pharmacol., 2004, 498(498):19-25.
[11] Jeon T W, Jin C H, Sang K L, et al. Toxicol. Lett., 2006, 164(2):155-66.
[12] Nguyen N V T, Lee K R, Yong J L, et al. J. Pharm. Biomed.Anal., 2013, 81-82(7):151-9.

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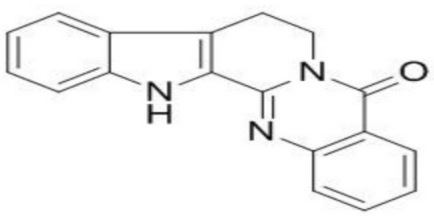
CERTIFICATE OF ANALYSIS

Name: Rutaecarpine
Catalog No.: KRN97337
Cas No.: 84-26-4
Purity: >= 98%
M.F: $C_{18}H_{13}N_3O$
Physical Description: White powder



Solvent:	Pyridine, Methanol, Ethanol, etc.
Weight	5mg
Lot No.	KRS201801
Storage	Protected from air and light, refrigerate or freeze (2-8 °C)
Intended Use	For laboratory use only
Shelf Life	2 years

CHARACTERIZATION DATA SUMMARY

Analytical Test	Results
Identification by , 1H-NMR , HPLC	Consistent with the above structure
Purity tested	>= 98%

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GHS SAFETY DATA SHEET

Version 4.2
Revision Date 01/01/2018
Print Date 01/08/2019

1. PRODUCT AND COMPANY IDENTIFICATION

GHS Product Name:	Rutaecarpine
Product code:	KRN97337
Company:	KAMPOYAKI HERS PTE LTD

Address: 16 New Industrial Road, #05-05 Hudson Techno Centre Singapore 536204

Tel: +65-63833202

Fax: +65-63833632

Website: www.kampoyaki-research.com

E-mail: thiru-sam@kampoyaki-research.com | kampoyak@singnet.com.sg

2. HAZARDS IDENTIFICATION

2.1 GHS classification

Physical Hazards: Not classified

Health Hazards: Not classified

Environmental Hazards: Not classified

2.2 GHS label elements, including precautionary statements

Pictograms or hazard symbols: None

Signal word: No signal word

Hazard statements: None

Precautionary statements: None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name: Rutaecarpine

CAS#: 84-26-4

Purity: >=98%

Formula: $C_{18}H_{13}N_3O$

Molecular Weight: 287.3

Hazard Symbols: ---

Risk Phrases: ---

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Consult a doctor.

Skin: Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Consult a doctor.

Ingestion: Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water. Consult a doctor.

Inhalation: Remove from exposure and move to fresh air immediately. Consult a doctor.

4.2 Indication of immediate medical attention and special treatment needed

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

5. FIRE FIGHTING MEASURES

5.1 Suitable extinguishing

Media: Dry chemical, foam, water spray, carbon dioxide.

Precautions for firefighters: Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place. In case of fire in the surroundings: Remove movable containers if safe to do so.

5.2 Special protective

Equipment for firefighters: When extinguishing fire, be sure to wear personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing vapors, mist or gas.

6.2 Environmental precautions

Do not let product enter drains.

6.3 General Information

Use proper personal protective equipment as indicated in Section 8.

6.4 Spills/Leaks

Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up, then place into a suitable container for disposal. Decontaminate spill site with 10% caustic solution and ventilate area until after disposal is complete

7. HANDLING AND STORAGE

7.1 Precautions for safe handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation. Keep away from sources of ignition. Avoid prolonged or repeated exposure.

7.2 Storage

Store in a well closed container. Protected from air and light, refrigerate or freeze.(2-8°C)

7.3 Specific end uses

Use in a laboratory fume hood where possible. Refer to employer is COSHH risk assessment.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Engineering controls

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels.

Control parameters: Not set up

8.2 Personal protective equipment

Respiratory protection: Dust respirator. Follow local and national regulations.

Hand protection: Protective gloves.

Eye protection: Wear safety glasses and chemical goggles if splashing is possible.

Skin and body protection: Wear appropriate protective gloves and clothing to prevent skin exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

a) Appearance Yellow powder
b) Odour no data available
c) Odour Threshold no data available
d) pH no data available
e) Melting point/freezing point no data available
f) Initial boiling point and boiling range no data available
g) Flash point no data available
h) Evaporation rate no data available
i) Flammability (solid, gas) no data available
j) Flammability or explosive limits no data available
k) Vapour pressure no data available
l) Vapour density
m) Relative density no data available
n) Water solubility no data available
o) Partition coefficient: no data available
p) Autoignition temperature no data available
q) Decomposition temperature no data available
r) Viscosity no data available
s) Explosive properties no data available
t) Oxidizing properties no data available

10 - STABILITY AND REACTIVITY

10.1 Reactivity

Stable under recommended transport or storage conditions.

10.2 Chemical Stability

Stable under normal temperatures and pressures.

10.3 Conditions to Avoid

Incompatible materials, strong oxidants, heat.

10.4 Incompatibilities with Other Materials

Strong oxidising/reducing agents, strong acids/alkalis.

10.5 Hazardous Decomposition Products

Nitrogen oxides, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, nitrogen.

10.6 Hazardous Polymerization

Has not been reported.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity:	No data available
Skin corrosion/ irritation:	No data available
Serious eye damage/irritation:	No data available
Germ cell mutagenicity:	No data available
Carcinogenicity:	---
IARC:	No data available
NTP:	No data available
Reproductive toxicity:	No data available

12. ECOLOGICAL INFORMATION

Toxicity:	No data available
Persistence and degradability:	No data available
Bioaccumulative potential:	No data available
Mobility in soil:	No data available
Results of PBT and vPvB assessment:	No data available
Other adverse effects:	May be harmful to the aquatic environment.

13. DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with federal, state, and local regulations.

14. TRANSPORT INFORMATION

14.1 Hazards Class:

Does not meet the criteria for classification as hazardous for transport

14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

14.3 Transport hazard class(es)

Does not meet the criteria for classification as hazardous for transport.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

No data available

15.2 Chemical Safety Assessment

No data available

16. ADDITIONAL INFORMATION

This GHS SDS above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

End of GHS safety data sheet

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