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**Date Coverage**
1970 – present

**Update Frequency**
Every two weeks

**Geographic Coverage**
Worldwide

**Document Types**
Journal articles, newsletters, meeting abstracts

**Publisher**
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Influence of paoniflorin and menthol on puerarin transport across MDCK and MDCK-MDR1 cells as blood-brain barrier in vitro model


Objective: Our objective of this research was (1) to investigate the transport characteristics of puerarin through MDCK-MDR1 and MDCK cells and (2) to evaluate the effects of paoniflorin and menthol on puerarin transport so as to (3) explore the enhancement mechanism.

Methods: The cytotoxicity of drugs on MDCK and MDCK-MDR1 was evaluated by the MTT assay, and the transport studies were performed in both directions. The membrane fluidity was evaluated by fluorescence recovery after photobleaching, and the membrane potential was estimated by the accumulation of DiBAC4(3) in the cells.

Key findings: Puerarin showed relatively poor absorption and purely passive diffusion. However, the efflux ratio of puerarin was < 2 in MDCK-MDR1 models, which suggested puerarin was not P-gp substrates so as to the P-glycoprotein activity determination of puerarin. With the existence of menthol, the transcellular transport of puerarin increased and puerarin transport significantly increased when co-administrated with paoniflorin and menthol.

Conclusions: The enhancing effect of paoniflorin and menthol may be attributed to the significant enhancement on cell membrane fluidity, the decrease in membrane potential. Immunostaining results indicated that menthol behaved as transport enhancer by disassembly effect on tight junction integrity.

Subject:
- Peoniflorin -- incompatibilities
- Menthol -- incompatibilities
- Puerarin -- transport
- Central nervous system drugs -- menthol
- Central nervous system drugs -- peoniflorin
- Central nervous system drugs -- puerarin
- Combined therapy -- menthol, peoniflorin and puerarin
- Combined therapy -- peoniflorin, menthol and puerarin
- Combined therapy -- puerarin, menthol and peoniflorin
- Mentha piperita -- menthol
- Terpenoids -- peoniflorin
- Pueraria species -- puerarin
- Incompatibilities -- menthol, peoniflorin and puerarin
- Incompatibilities -- peoniflorin, menthol and puerarin
- Incompatibilities -- puerarin, menthol and peoniflorin
- Incompatibilities -- peoniflorin
- Daonos suffruticosa -- peoniflorin
- Incompatibilities -- menthol
- Alcohols -- menthol
- Permeation -- puerarin
- Isoflavonoids -- puerarin
- Folk medicine -- China
- Plants -- medicinal
- Permeability -- blood brain barrier
- China -- folk medicine
- Blood brain barrier -- permeability
Classification
8: Biopharmaceutics
10: Drug Stability
22: Sociology, Economics and Ethics
17: Pharmacognosy

Therapeutic classification
28:00: Central nervous system drugs, Menthol
28:00: Central nervous system drugs, Puerarin
28:00: Central nervous system drugs, Puerarin

SUBST
Substance
Substance: Peoniflorin
CAS: 23180-57-6
Substance: Menthol
CAS: 1490-04-6
Substance: Puerarin
CAS: 3681-99-0

GN
Generic name: Peoniflorin

TN
Drug trade name: Paeoniflorin

TI
Title: Influence of paeoniflorin and menthol on puerarin transport across MDCK and MDCK-MDR1 cells as blood-brain barrier in vitro model

AU
Author: Yang, B; Du, SY; Lu, Y; Jia, S; Wu, H C

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Correspondence author: Du, SY Beijing Univ Chinese Med, Sch Chinese Med Med, Beijing, Peoples R China duahuuying@263.net.

LA
Language: English

SL
Language of abstract: English

DTYPE
Document type: Article

PUB
Publication title: Journal of Pharmacy and Pharmacology (England)

VO
Volume: 70

ISS
Issue: 3

PG
Pagination: 349-360

ISSN
ISSN: 0022-3573

CODEN
CODEN: JPPMAB

RTYPE
Publication type: Journal

NR
Number of references: 34

PD,YR
Publication date: 2018

AN
Source attribution: International Pharmaceutical Abstracts, © Publisher specific

Accession number: 55-11443

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FAV
First available: 2018-11-19

UD
Updates: 2018-11-19

**Search Fields**

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<th>Field name</th>
<th>Field code</th>
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<td>RN</td>
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<td>YR</td>
<td>yr(2018) yr(2016-2019)</td>
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<td>Title (document)</td>
<td>TI</td>
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<td>Use Adjacency and/or Boolean operators to narrow search results.</td>
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1 A Lookup/Browse feature is available for this field in the Advanced Search dropdown or in Browse fields.

2 Click the “Field codes” hyperlink at the top right of the Advanced Search page. Click “Search syntax and field codes”, then click on “FDB command” to get a list of database names and codes that can be searched with FDB.

In addition to **Search Fields**, other tools available for searching are **Limit Options, Browse Fields, “Narrow Results By” Limiters** and **Look Up Citation**. Each is listed separately below. Some data can be searched using more than one tool.

### LIMIT OPTIONS

Limit options are quick and easy ways of searching certain common concepts. A check box is available for:

**Abstract included**

Short lists of choices are available for:

**Document type, Language**

**Date limiters** are available in which you can select single dates or ranges for **Date of publication** and **Updated**.

### BROWSE FIELDS

You can browse the contents of certain fields by using Look Up lists. These are particularly useful to validate spellings or the presence of specific data. Terms found in the course of browsing may be selected and automatically added to the Advanced Search form. Look Up lists are available in the fields drop-down and in the search options for:

**Author, Publication title, Subject**

If one of those search fields is selected, the Look Up feature appears under the Field code drop-down box.
“NARROW RESULTS BY” LIMITERS

When results of a search are presented, the results display is accompanied by a list of “Narrow Results by” options shown on the right-hand panel. Click on any of these options and you will see a ranked list showing the most frequently occurring terms in your results. Click on the term to apply it to (“narrow”) your search results. “Narrow Results by” Limiters in International Pharmaceutical Abstracts include:

Author, Language, Publication title, Subject, Classification, Document type, Publication date

LOOK UP CITATION

If you need to trace a particular bibliographic reference, use the Look Up Citation feature. Find a link to this towards the top left-hand corner of the Advanced Search page; click this and you will go to a form where you can enter any known details of the citation, including:

Document title, Author, Journal name, Volume, Issue, Page, Publication date, ISSN

DOCUMENT FORMATS

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<th>Fields</th>
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