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**Date Coverage**
1970 – present

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Every two weeks

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Worldwide

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

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**Abstract (summary)**  Translate

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 DiSC4(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-administered 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.

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**Subject**

- Paoniflorin -- incompatibilities
- Menthol -- incompatibilities
- Puerarin -- transport
- Central nervous system drugs -- menthol
- Central nervous system drugs -- paoniflorin
- Central nervous system drugs -- puerarin
- Combined therapy -- menthol, paoniflorin and puerarin
- Combined therapy -- paoniflorin, menthol and puerarin
- Combined therapy -- puerarin, menthol and paoniflorin
- Mentha piperita -- menthol
- Terpenoids -- paoniflorin
- Pueraria species -- puerarin
- Incompatibilities -- menthol, paoniflorin and puerarin
- Incompatibilities -- paoniflorin, menthol and puerarin
- Incompatibilities -- puerarin, menthol and paoniflorin
- Incompatibilities -- paoniflorin
- Paeonia suffruticosa -- paoniflorin
- Incompatibilities -- menthol
- Alcohols -- menthol
- Permeation -- puerarin
- Isoflavones -- 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, Peoniflorin
28:00: Central nervous system drugs, Puerarin

SUBST
Substance
Peoniflorin
CAS: 23180-57-6

Menthol
CAS: 1490-04-6

Puerarin
CAS: 3681-99-0

GN
Generic name
Peoniflorin

TN,TNDRUG
Drug trade name
Peoniflorin

TI
Title
Influence of paoniflorin and menthol on puerarin transport across MDCK and MDCK-MDR1 cells as blood-brain barrier invitro model

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

AF
Correspondence author
Du, SY Beijing Univ Chinese Med, Sch Chinese Mat Med, Beijing, Peoples R China dushouying@253.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
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Accesion number
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FAV
First available
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UD
Updates
2018-11-19

Database
International Pharmaceutical Abstracts (1970 - current)
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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.

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