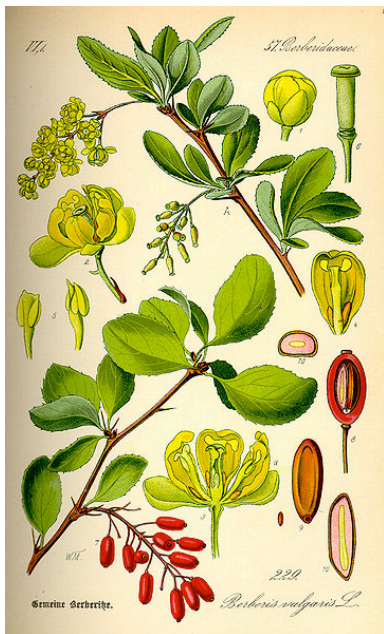


Exciting developments in Berberis research

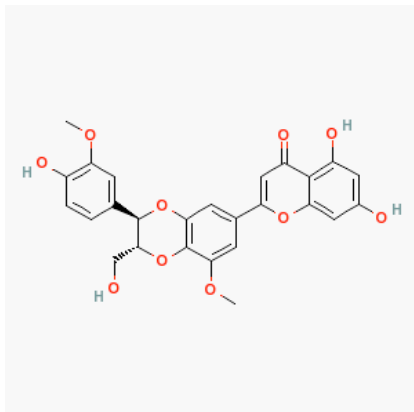


Berberine and synergy: overcoming multidrug resistance

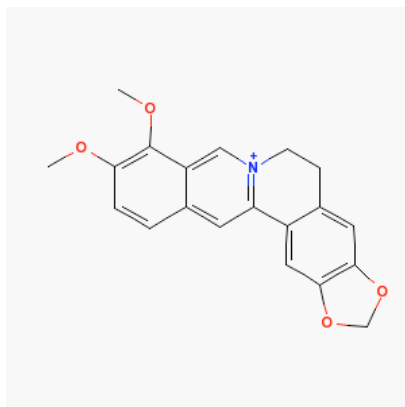
Berberis contains not only the alkaloid *berberine*, but also the flavolignan *5'-methoxyhydrnocarpin*.

5'-methoxyhydrnocarpin does not itself have antibiotic activity. But it can inhibit the multidrug resistant pumps (MDRs) in the microbial cell membrane, so that the antimicrobial alkaloid berberine stays inside the microbial cells.

Thus *5'-methoxyhydrnocarpin* potentiates the antimicrobial effect of berberine, making Berberis a more potent antimicrobial than its isolated alkaloids¹.



5-methoxyhydrnocarpin
(flavolignan)



berberine (a protoberberine alkaloid with no phenol group)

Berberine enhances medical drugs

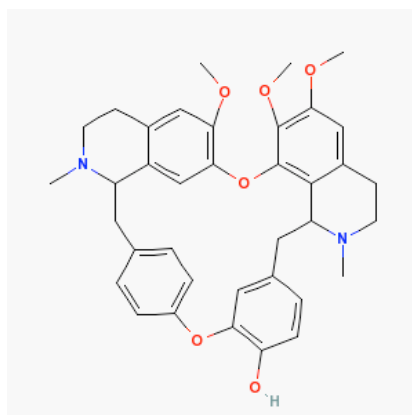
For example, berberine can enhance the effectiveness of the following medical drugs:

- *simvastatin*: berberine enhances reduction of lipid levels²
- *arsenic trioxide*: berberine enhances anticancer effect³
- *oxacillin*: berberine enhances action against MRSA⁴

Berberine reduces drug side effects

For example, berberine can reduce radiation-induced acute intestinal symptoms in abdominal radiotherapy⁵.

Berberis and treatment of cardiovascular disorders



berbamine (a benzyloquinolene alkaloid with a phenol group)

Berberis contains the alkaloids berberine and *berbamine*, two

reported to have cardiovascular actions such as⁶:

- cardioprotective
- cardiotonic
- antiarrhythmic
- anticholesterolemic
- antiangiogenic
- anti-inflammatory (arterial endothelium)
- antiatherosclerotic
- vasodilatory
- hypotensive
- antithrombotic

BERBERIS RESEARCH REFERENCES

To check these references online, go to Pub Med and enter the author details.

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3. Lin TH, Kuo HC, Chou FP, et al. BMC Cancer 25(8):58 (2008)
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6. Ross J. A Clinical Materia Medica: 120 Herbs in Western use. VGM, Bad Koetzing (2010)

BERBERIS JRHC EXAMPLE

Berberis: Candida infection

Jeremy has designed this new herb combination according to advances in research and according to the principles of Chinese medicine.

Herb	Ratio
Berberis vulgaris cortex	1
Echinacea angustifolia radix	1
Thymus vulgaris herba	1
Cinnamomum cassia cortex	1
Glycyrrhiza glabra radix	1

Click on top menu bar to see details of this Berberis combination.