Rhizoma Coptidis – **Huanglian**

**Pharmacopoeia:** Pharmacopoeia of the People’s Republic of China, English Edition 2000/2005\(^{(1)}\)

**Official drugs\(^{(1)}\):**
- *Coptis chinensis* Franch. (Weilian)
- *Coptis deltoidea* C. Y. Cheng et Hsiao (Yalian)
- *Coptis teeta* Wall. (Yunlian)

The drug is also known as Oren (Japan), Hwangnyon (Korea) and as Golden Thread (English).

– *Ranunculaceae* –

**Origin:** Middle and southern regions of China, northern India and Japan.

**Description of the drug\(^{(1)}\):**

**Rhizome of Coptis chinensis:** Mostly gathered to a cluster, curved, like ‘chicken’s feet’, single rhizome 3-6 cm long, 0.3-0.8 cm in diameter. Externally greyish-yellow or yellowish-brown, rough, bearing irregular nodular protrudings, rootlets and remains of rootlets, some internodes smooth as stem. The upper part mostly remained with brown scale leaves, apex often bearing remains of stems or petioles. Texture hard, fracture uneven, bark orange-red or dark brown, wood brightly yellow or orange-yellow, radially arranged, pith sometimes hollowed. Odour, slight; taste, very bitter.

**Rhizome of Coptis deltoidea:** Mostly single, somewhat cylindrical, slightly curved, 4-8 cm long, 0.5-1 cm in diameter. Internodes smooth and relatively long. Apex with some remains of stems.

**Rhizome of Coptis teeta:** Curved hook-like, mostly single, relatively small.

**Pretreatment of the raw drug\(^{(1)}\):**

**Coptidis rhizoma:** The drug is collected in autumn, removed from rootlet and soil, and dried.

**Coptidis rhizoma (processed with wine):** From the harvested rhizoma foreign matters are removed, softened thoroughly, cut into thin slices, dried in air, or broken to pieces before use. Sometimes the rhizoma slices are stir-fried with wine in a closed vessel until it is infused completely. 12.5 kg of yellow rice wine for 100 kg of Rhizoma Coptidis are roasted in a pot and heated gentle to dryness.

**Coptidis rhizoma (processed with ginger):** To the rhizoma slices ginger juice is added and mixed well. For 100 kg Rhizoma Coptidis 12.5 kg of ginger are used. The whole is stir-baked in a pot with gentle heat until the ginger juice is absorbed completely to dryness.

**Coptidis rhizoma (processed with Fructus Evodiae):** Fructus Evodiae is cooked with water, the decoction continued with clean Rhizoma Coptidis and then stirbaked to dryness. To
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Each 100 kg of Rhizoma Coptidis 10 kg of Fructus Evodiae are added.

**Medicinal use**\(^{(1-5)}\): For the treatment of gastroenteritis, diarrhea, vomiting, icterus, fever, insomnia, hematemesis, nose bleeding, conjunctivitis, toothache, carbuncle and abscess, as a bitter digestive for the treatment of indigestion diabetes and eczema by external application.

### Effects and indications according to Traditional Chinese Medicine\(^{(1-9)}\)

<table>
<thead>
<tr>
<th>Taste:</th>
<th>bitter</th>
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<tbody>
<tr>
<td>Temperature:</td>
<td>cold</td>
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<tr>
<td>Channels entered:</td>
<td>large intestine, liver, stomach, heart</td>
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<tr>
<td>Effects:</td>
<td>clears heat and dry dampness, reduces fire and dispels toxins, stops bleeding, drains stomach and abdomen, acts on liver and heart</td>
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<td>Symptoms and indications:</td>
<td>for damp heat with suffiness and fullness of the abdomen, high fever accompanied by impairment of consciousness; restlessness and insomnia due to exuberant fire; nosebleeding, blood in the urine; spitting of blood and epistaxis caused by heat in the blood; irritability; delirium, disorientation; topical for red eyes; sore throat carbuncles and abscesses, ulceration of the tongue and the mouth; diarrhoea, vomiting; diabetes; digestive dysfunction; dysmenorrhoea; arthritis; gout; malaria; renal disease</td>
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**Main constituents**\(^{(2,7,9-11)}\): (see Fig. 1)

- **quaternary protoberberine-type alkaloids**: berberine, coptisine, palmatine, epiberberine besides columbamine, jatrorrhizine, worenine, groenlandicine, berberastine etc.
- **quaternary aporphine alkaloid**: magnoflorine
- **flavonoids**: baicalin, wogonoside, baicalein, wogonin
- **tetracyclic triterpenes**: limonin
- **organic acids**: ferulic acid, gentisic acid, quinic acid

**Pharmacology:** *in vitro* effects:

- antibacterial (*Shigella*, *Brucella*, *Staphylococcus* and *Streptococcus* sp.)\(^{(7)}\)
- antifungal (e.g. *Candida albicans* or *Penicillium* sp.)\(^{(7,12)}\)
- antiprotozoic (*Entamoeba histolytica*)\(^{(7)}\)