WHMF212 - Herbal Medicine
Materia Medica 2

Session 9
Musculoskeletal System
Department of Naturopathic Medicine
Session 9

Musculoskeletal System:

- Materia Medica (from Traditional literature & research):
  - Apium graveolens
  - Boswellia serrata
  - Corydalis ambigua
  - Harpagophytum procumbens
  - Salix alba
  - Viburnum opulus
Musculoskeletal System

Skeletal system is comprised of:
• 206 bones (axial & appendicular)

Main roles:
• Protection
• Provide shape and support
• Movement
• Blood cell production (bone marrow)
• Mineral storage & release
• Triglyceride storage (yellow bone marrow)

(Tortora & Derrickson, 2009)
Musculoskeletal System

Muscular system is comprised of:
- 640 named muscles

Functions include:
- Stabilising body positions
- Provide movement
- Storing and moving substances within the body
- Thermogenesis

(Tortora & Derrickson, 2009)

Anatomy of the muscular system
(Nucleus Medical Media, 2009b)
Musculoskeletal System

Herbal medicines can be useful for:

• Early and transient joint inflammation
• Gout
• Repetitive strain injury

Management of:

• Long-standing joint disease with joint damage
• Low back pain
• Fibromyalgia

(Bone & Mills, 2013)
Musculoskeletal System

Myofascial sprain / strain injury

Myofascial sprain/ strain
(Nucleus medical media, 2012d)
Musculoskeletal System

Herbal actions include:
• Analgesics
• Anti-inflammatories
• Topical counter-irritants
• Anti-rheumatics
• Diuretics
• Circulatory stimulants

General Approach
• Improve delivery of nutrients and waste removal around joints.
• Symptomatic support of condition and systems affected.

(Bone & Mills, 2013)
Apium graveolens

Plant family: Apiaceae
Part used: Fruit (seed)
Active Constituents:
• Furanocoumarins, volatile oil, fixed oils, flavonoids

(Fisher, 2018)

Actions:
• Anti-rheumatic, anti-inflammatory, diuretic, urinary antiseptic, carminative, hypotensive

(Fisher, 2018)
Historical & Traditional Prescribing:

• Diuretic, relieving urinary irritation.
• Very useful in dropsy, especially that following scarlatina, and other exanthematous diseases.
• Also used in retention of urine, strangury, and gonorrhoea.

(Felter & Lloyd, 1898)
Apium graveolens

Cautions / Contraindications / Warnings:
• Kidney disorders & kidney inflammation as apiol (essential oil) causes epithelial irritation

Herb/Drug Interactions:
• None known (Bone, 2003)

Pregnancy & Lactation:
• Use with caution - high doses of apiol can cause uterine contractions.
  (Bone, 2003; Fisher, 2018)
## Apium graveolens

<table>
<thead>
<tr>
<th>Preparation</th>
<th>Adult mL/g</th>
<th>Dosage directions &amp; considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td></td>
<td>Side effects: may cause allergic reactions (rare)</td>
</tr>
<tr>
<td>Fluid extract 1:2 (60%)</td>
<td>30-60mL/ week</td>
<td></td>
</tr>
<tr>
<td>Decoction</td>
<td>0.5-2gm/ dose</td>
<td>Take up to three times per day</td>
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</tbody>
</table>

(Bone, 2003; Fisher, 2018)

**Taste:** cold (Thomsen & Gennat, 2009)
**Boswellia serrata**

**Plant family:** Burseraceae  
**Part used:** Resin  
**Active Constituents:**  
- Triterpene acids, essential oil  
**Action:**  
- Anti-inflammatory, anti-arthritic  
  (Bone & Mills, 2013)
Boswellia serrata

Historical & Traditional Prescribing

- The resin is used in the East for chewing (Hedrick, 1919)
- The resin is traditionally applied topically as an astringent & anti-inflammatory agent. Internally as a stimulant & expectorant.

  (Bone & Mills, 2013)
Boswellia serrata

Cautions / Contraindications
• None known

Warnings and Precautions:
• Caution in patients with known allergic tendency

Herb/Drug Interactions:
• None known

Pregnancy and Lactation:
• No adverse effects expected
  (Bone & Mills, 2013)
**Boswellia serrata**

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<tr>
<td>Oral</td>
<td></td>
<td>Side effects: Contact dermatitis may occur</td>
</tr>
<tr>
<td>Liquid extract 1:1 (80%)</td>
<td>7-14mL/week</td>
<td></td>
</tr>
<tr>
<td>Dried resin</td>
<td>2-9gm/ day</td>
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</tbody>
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*Bone & Mills, 2013*

**Taste:** bitter, pungent, astringent, sweet

*(Thomsen & Gennat, 2009)*
Corydalis ambiguа

**Plant family:** Papaveraceae

**Part used:** Rhizome

**Active Constituents:**
- Alkaloids: (tetrahydro-palmatine)

**Actions:**
- Analgesic, bitter, sedative, hypnotic, anti-arrhythmic, cardioprotective

(Bone, 1996; Thomsen & Gennat, 2009)
Corydalis ambigua

Historical & Traditional Prescribing

• Tonic, diuretic, alterative. Given in syphilitic, scrofulous, and cutaneous affections.
  (Remington & Wood, 1918)

• Blood stasis with chest, abdominal & limb pain, dysmenorrhoea and headache
  (Hempen & Fischer, 2009)
Corydalis ambigua

Cautions / Contraindications / Warnings:
• None known

Herb/Drug Interactions:
• None known

Pregnancy and Lactation Data:
• Contraindicated in pregnancy
  (Thomsen & Gennat, 2009)
### Corydalis ambiguа

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<tbody>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluid extract 1:2 (45%)</td>
<td>25-60mL/ week</td>
<td></td>
</tr>
<tr>
<td>Dried herb</td>
<td>1-3gm/ dose</td>
<td>Take up to three times per day</td>
</tr>
</tbody>
</table>

(Thomsen & Gennat, 2009)

**Taste:** Bitter, slightly acrid and warm

(Thomsen & Gennat, 2009)
Harpagophytyum procumbens

Plant family: Pedaliceae

Part used: Root

Active Constituents:
- Carbohydrates, iridoid glycosides (harpagosides), phenols, amino acids, triterpenes
  
  (Braun & Cohen, 2015)

Actions:
- Anti-inflammatory, analgesic, anti-rheumatic, sedative, diuretic, bitter tonic
  
  (Fisher, 2018; Bone & Mills, 2013)
Harpagophytum procumbens

Historical & Traditional Prescribing

• Used by South Africans & Europeans for its purgative and bitter tonic actions; for febrile illnesses, allergic reactions and migraine. Externally for healing ulcers, wounds, lesions and boils.
  
  (Bone & Mills, 2013)

• Used for blood diseases including malaria. Digestive disorders. Allergies. Skin problems including cancers.
  
  (Fisher, 2018)
Harpagophytum procumbens

Cautions / Contraindications:
• Gastric & duodenal ulceration. Gallstones.

Herb/Drug Interactions:
• One case of warfarin & Harpagophytum procumbens presented with purpurea.

Pregnancy & Lactation:
• No adverse effects are expected
  (Bone & Mills, 2013)

Harpagophytum procumbens
(Pidoux, 2005)
# Harpagophytum procumbens

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<tr>
<td>Oral</td>
<td></td>
<td>Mild gastrointestinal disturbances may occur in sensitive individuals, especially at the higher dose levels</td>
</tr>
<tr>
<td>Fluid extract 1:2 (25%)</td>
<td>20-80mL/ week</td>
<td></td>
</tr>
</tbody>
</table>
| Decoction       | 0.5gm/ dose 1.5-2.5gm/ dose | For dyspepsia  
For back pain  
Take up to three times per day |

Taste: cold, pungent (Thomsen & Gennat, 2009)
Salix alba

Plant family: Salicaceae
Part used: Bark
Active Constituents:
- Glycosides, salicylates, flavonoids, tannins, catechins (Braun & Cohen, 2015)

Actions:
Salix alba

Historical & Traditional Prescribing:

• Used by the Egyptians & Greeks, Hippocrates and Dioscorides for pain & fever (Fisher, 2018)

• Given in intermittents, dyspepsia, debility of the digestive organs, passive haemorrhages, chronic mucous discharges, worms & convalescence from acute diseases (Felter & Lloyd, 1898)
Salix alba

Cautions / Contraindications / Warnings:
• Hypersensitivity / allergy to salicylates or herb.
• Contra-indicated in glucose-6-phosphate dehydrogenase deficient persons as salicylic acid causes haemolytic anaemia

Herb/Drug Interactions:
• Additive effects: aspirin, anticoagulants, salicylate drugs, NSAID’s.

Pregnancy and Lactation:
• Salicylate containing drugs are contraindicated in both but no restrictions are known for Salix alba.
  (Bone & Mills, 2013; Braun & Cohen, 2015; Fisher, 2018 )
**Salix alba**

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<tr>
<td>Oral</td>
<td></td>
<td>Side effects: tannins and salicylate content can cause gastro-intestinal upset, dizziness, sweating and rash</td>
</tr>
<tr>
<td>Fluid extract 1:1 (25%)</td>
<td>21-42mL/ week</td>
<td></td>
</tr>
<tr>
<td>Decoction of dried herb</td>
<td>1-2gm/ dose</td>
<td>Take up to three times per day</td>
</tr>
</tbody>
</table>

*Fisher, 2018; Braun & Cohen, 2010*

**Taste:** cold 2nd degree, dry 2nd degree

*(Thomsen & Gennat, 2009)*
Viburnum opulus

Plant family: Caprifoliaceae
Part used: Bark
Active Constituents:
- Resins, valeric acid, tannins, hydroquinones, coumarins

Actions:
- Spasmolytic, mild sedative, astringent, hypotensive, peripheral vasodilator

(Bone, 2003; Fisher, 2018)
Historical & Traditional Prescribing:

- Very effective in relaxing cramps; uterine pain, with spasmodic action; pain in thighs and back; bearing down, expulsive pains; neuralgic or spasmodic dysmenorrhoea. As an anti-abortion.

(Felter & Lloyd, 1898)
**Viburnum opulus**

**Cautions / Contraindications / Warnings:**
- None known

**Herb/Drug Interactions:**
- None known

**Pregnancy and Lactation:**
- No adverse effects expected

**Side effects / Adverse Events:**
- None expected if taken within the recommended dose range

(Bone, 2003)
**Viburnum opulus**

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<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluid extract 1:2 (30%)</td>
<td>15-30mL/week</td>
<td></td>
</tr>
<tr>
<td>Decoction of dried herbs</td>
<td>1-2gm /dose</td>
<td>Take up to three times per day</td>
</tr>
</tbody>
</table>

(Taste: cool and dry) (Thomsen & Gennat, 2009)
Recommended Readings


- Boswellia serrata (p.441-449)


- *Apium graveolens* (p. 156-157)
- *Harpagophytum procumbens* (p. 276-277)
- *Salix alba* (p. 1179-1185)
Recommended Readings


- *Apium graveolens* (p. 12)
- *Harpagophytum procumbens* (p. 321-323)
- *Salix alba* (p. 400-402)
- *Viburnum opulus* (p. 134-135)
References


References


References


Tutorial

Session 9
Tutorial

Students to work in small groups:

Each group is assigned one condition:

- Group 1: Osteo-arthritis
- Group 2: Rheumatoid arthritis
- Group 3: Gout
- Group 4: Fibromyalgia
Tutorial

Within these groups, individuals are given 15 minutes to research and identify the following:
1. Risk factors & causes.
2. Stages of development & symptoms of each stage.
3. Other systems that may be affected.

As a group, discuss the following:
- Herbal actions, and herbs considered useful in the management of the symptoms or stages within the condition.

Each group reports their findings to the class.
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