



EVROPSKÁ UNIE



MINISTERSTVO ŠKOLSTVÍ,
MLÁDEŽE A TĚLOVÝCHOVY



OP Vzdělávání
pro konkurenceschopnost

INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

PHYTOPHARMACEUTICALS

academic year 2018/19

LECTURE 14 – Phytopharmaceuticals for external use – Part 2

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DERMATOLOGICS

- ▶ = preparations used topically
 - ▶ in case of skin diseases
 - ▶ for skin irritation, blood congestion (hyperaemia), induction a feeling of warm
 - ▶ for protection of health skin against external influences
- ▶ Disinfectants, antiseptics, antibacterials, antivirals, antifungals
- ▶ Antipruritics, antiseborrheic agents, antipsoriatics, antiscabietics
- ▶ Astringents, antiphlogistics
- ▶ Keratolytic, emollients
- ▶ Preparations used for repairing wounds (re-epithelisation, re-granulation)
- ▶ Preparations used to treat burns, frostbites,...
- ▶ **Preparations used to treat muscular injuries, contusions, external antirheumatics,...**

PHYTOPHARMACEUTICALS

used to treat MUSCULAR and JOINT INJURIES

▶ „counterirritant agent“

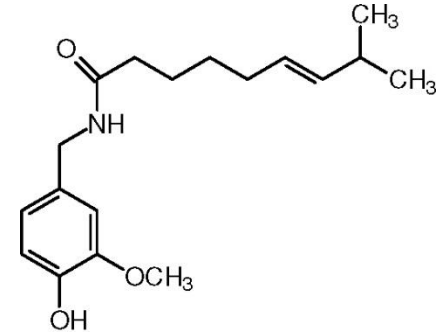
- ▶ externally applied substance that causes irritation or mild inflammation of the skin for the purpose of relieving pain in muscles, joints and viscera distal to the site of application.
- ▶ They differ from the anaesthetics, analgesics, and antipruritic agents, however, in that the pain relief they produce results from stimulation --- rather than depression --- of the cutaneous sensory receptors and occurs in structures of the body other than the skin areas to which they are applied as for example, in **joints, muscles, tendons**.

PHYTOPHARMACEUTICALS

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CAPSAICIN

- ▶ *Capsicum anuum*, *C. frutescens*, Solanaceae
chilli pepper
- ▶ an alkaloid that makes the chilli peppers taste „hot“
- ▶ it binds to nociceptors in the skin, or mucous membrane, causing an initial excitation of the neurones and a period of enhanced sensitivity (due to a selective stimulation of afferent C fibres and release of substance P) – perceived as itching, pricking, or burning, with cutaneous vasodilatation. This is followed by a refractory period with reduced sensitivity and, after repeated applications, persistent desensitisation.
- ▶ topical preparations are used to treat pain from rheumatoid arthritis, osteoarthritis, neuralgia, diabetic neuropathy, also to treat pain due to pruritis, psoriasis, cluster headaches, etc.



PHYTOPHARMACEUTICALS

used to treat MUSCULAR and JOINT INJURIES

▶ CAPSICOLLE

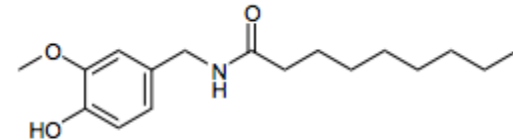
DRM EMP MED 110 mm x 190 mm (Sporfaplast, ČR)

▶ medicated plaster, cutaneous use

▶ Nonivamidum (= capsaicin derivative)
Belladonnae radice extractum spissum
(refers to Atropini sulfas 6 µg)

▶ SUKL code: 0192930
Selected medicinal product

▶ ATC: M02AB
(Capsaicin and related compounds)



Nonivamid

25 µg

426 µg



PHYTOPHARMACEUTICALS

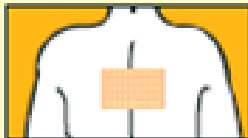
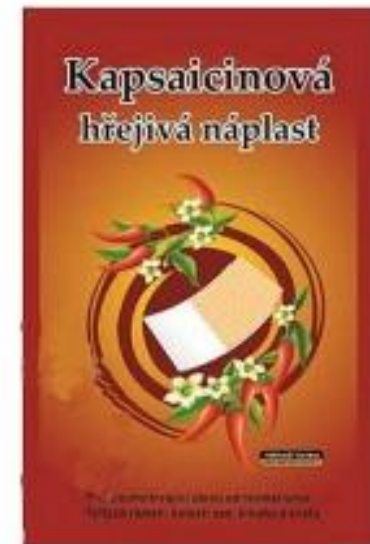
used to treat MUSCULAR and JOINT INJURIES

▶ CAPSAICIN WARMING PLASTER

(Tým pro Farmacii, ČR)

▶ 70 mm x 100 mm, or 120 mm x 180 mm

▶ extr. <i>Capsicum anuum</i>	2,89 %
olibanum	12,5 %
menthol	9,6 %
camphor	9,6 %
extr. <i>Ferula assa-foetida</i>	7,5 %
Cinnamomi cortex	5 %
Rehmanniae radix	5 %
extr. <i>Atropa belladonna</i>	1,52 %



PHYTOPHARMACEUTICALS

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CAMPHORA

- ▶ *Camphora officinarum* (*Cinnamomum camphora*)
Lauraceae, camphor
- ▶ natural D-camphor, or synthetic D,L (racemic)
- ▶ chemically manufactured from turpentine oil
- ▶ is readily absorbed through the skin and produce a feeling of cooling, and acts as a slight local anesthetic and antimicrobial agent, stimulates blood circulation
- ▶ is available as and essential oil for aromatherapy or topical applications – used in anti-itch gels, cooling gels (to relief pain),...
- ▶ oral administration for minor heart symptoms and fatigue



PHYTOPHARMACEUTICALS

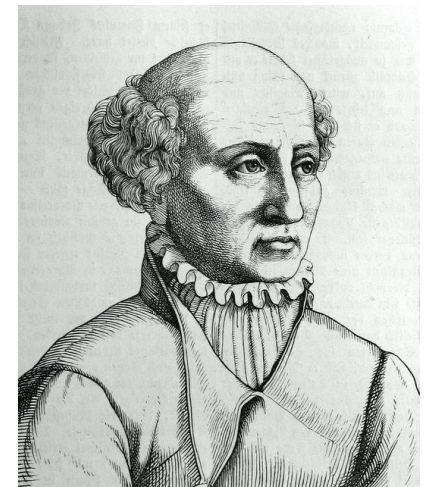
used to treat MUSCULAR and JOINT INJURIES

OPODELDOK

- ▶ Linimentum saponato-camphoratum
(ČsL 3 = Czechoslovak Pharmacopoeia 3)

- ▶ Camphora 20 g
- ▶ Sapo medicinalis 50 g
- ▶ Ammonium
- ▶ Aqua purificata 70 g
- ▶ Ethanolum 95 % (V/V) 800 g
- ▶ Lavandulae etheroleum
- ▶ Rosmarini etheroleum

- ▶ the history of „opodeldoc“ – in 16th century, Paracelsus made a mixture of soap in alcohol, camphor and several herbal ingredients for treatment of rheumatoid disorders



PHYTOPHARMACEUTICALS

used to treat MUSCULAR and JOINT INJURIES

Refit OPODELDOK (Edwin Ozimek, ČR)

- ▶ a traditional ointment with the intensive effects of **camphor**, **lavender** and **rosemary**
- ▶ It is most commonly used in relieving joint and muscular pain, to promote blood circulation
- ▶ used in inflammation, rheumatism and gout
- ▶ **OPODELDOK Extra Strong**
 - ▶ contains also **peppermint** (refreshing effect)
- ▶ **OPODELDOK Warming**
 - ▶ contains also **capsaicin**, **ginger** and **cinnamon**



PHYTOPHARMACEUTICALS

used to treat MUSCULAR and JOINT INJURIES

Priessnitz (Simply You, ČR)

▶ COOLING LINIMENT De Luxe

- ▶ camphor, menthol, lavender oil

▶ WARMING LINIMENT De Luxe

- ▶ capsaicin
camphor
dwarf pine oil – *Pinus mugo* var. *pumilio*
Boswellia serrata (Burseraceae) – resin

▶ JOINT LINIMENT Classic JOINT LINIMENT De Luxe

- ▶ camphor, menthol
rosmarin oil
Boswellia

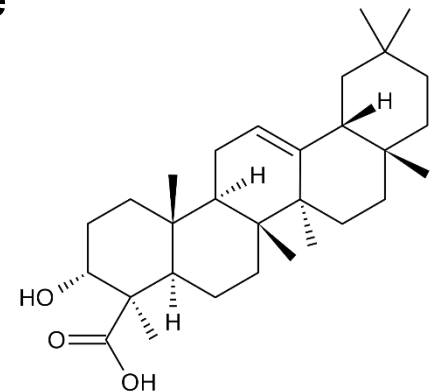


PHYTOPHARMACEUTICALS

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Boswellia

- ▶ *Boswellia* sp., Burseraceae – trees or shrubs native to tropical regions of Africa and Asia
- ▶ fragrant resin exuded from the tree after damage
- ▶ previously called „frankincense“ or „olibanum“ (mentioned in the Bible as one of the three gifts that the wise men gave to the young child Jesus)
- ▶ active principles: 1-3 % essential oil (mono- and sesquiterpene structures), 60-70 % resin (triterpene acids – boswellic acids), about 20 % of gum,...
- ▶ anti-inflammatory, immunomodulatory activity, antibacterial, antifungal activities; treatment of asthma, spasmogenic effect



PHYTOPHARMACEUTICALS

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ALPA

▶ ALPA Francovka

- ▶ alcohol-based solution of natural essential oils and isolated compounds (**menthol, linalool, nerol,...**)
- ▶ used to relieve pain and discomfort due to rheumatic arthritis and muscular rheumatism, for hematoma, dislocation and contusions
- ▶ for disinfection of small scratches and wounds
- ▶ for reflex massages in case of rheumatic muscle pain
- ▶ addition of other natural extracts, essential oils,...
- ▶ other application forms – emulsions, gels, creams, baths



PHYTOPHARMACEUTICALS

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▶ *Symphyti radix*

Symphytum officinale, Boraginaceae,
comfrey

- ▶ the main component is allantoin (0.6-0.8 %), which supports regeneration
- ▶ 4-6 % tannins, mucilage, triterpenes,...
- ▶ pyrrolizidine alkaloids, partly as N-oxides (necines) = hepatotoxic effect !!!
- ▶ externally in the form of poultices, ointments and pastes as an anti-inflammatory in damage to the periosteum, inflammation of joints, tendons; arthritic swellings, for promoting callus formation in fractures, dislocations, contusions, sprains, haematomas,...
- ▶ ointments or other preparations for external use containing 5-20 % of the drug



PHYTOPHARMACEUTICALS

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▶ Arnicae flos

Arnica montana, Asteraceae

- ▶ the main constituents are sesquiterpene lactones (**helenalins**, and their esters with lower fatty acids)
- ▶ flavonoids, essential oil of a buttery consistency (containing 40-50 % fatty acids, *n*-alkanes and mono- and sesquiterpenes), cinnamic acid derivatives, coumarins, polyacetylenes, carotenoids
- ▶ used for wound healing, and as a wound antiseptic, antiphlogistic, antirheumatic, antineuralgic
- ▶ used for injuries and accidents (sprains, dislocations, bruising, haematomas, oedema associated with fractures), in arthralgia and rheumatic pains in the joints
- ▶ the most frequently used form of the drug is the tincture



PHYTOPHARMACEUTICALS

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TRAUMAPLANT

DRM UNG 1X50GM (Harras Pharma Curarina GmbH, Germany)

- ▶ composition in 100 g:
 - ▶ *Symphyti peregrini herbae succus* 10 g
 - ▶ vehicles, sorbic acid,...
 - ▶ SUKL code: 0043979
OTC medicinal product
 - ▶ ATC: V11 (Phytopharmaceuticals)
- ▶ contains a concentrate of a juice pressed out of freshly harvested haulm of comfrey (*Symphytum peregrinum*) and has anti-inflammatory effects
 - ▶ suitable to apply to sport injury wounds, bruises, sprains, in muscle and joint pain
 - ▶ Notice: in persons with a very sensitive skin reddening of the area treated with the ointment can very rarely occur.



PHYTOPHARMACEUTICALS

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▶ COMFREY OINTMENT

- ▶ many producers, e. g. Aromatica, Dr. Müller, Grešík, Dr. Popov, Topvet,...



▶ ARNICA OINTMENT

- ▶ many producers, e. g. Aromatica, Dr. Müller, Kneipp, Dr. Popov, Weleda,...



PHYTOPHARMACEUTICALS

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▶ **Chestnut**

Aesculus hippocastanum seed/flower

- ▶ active substances: saponines (aescin), tannins, flavonoid glycosides
- ▶ They help to increase the elasticity of vascular walls, blood perfusion, vascular flow and limit formation of oedemas. They have also a significant **anti-inflammatory and healing effect.**

▶ **Juniper**

Juniperus communis (pseudo)fruit/wood

- ▶ it contains mainly essential oil (terpenes)
- ▶ activates the lymphatic system, which helps to eliminate toxic substances from the body. It effectively **accelerates regeneration.**

PHYTOPHARMACEUTICALS

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- ▶ **HORSE BALSAM Warming**
(Herbamedicus, Switzerland)
 - ▶ natural nourishment for joints, muscles and spine, relieves rheumatic conditions, provides help with lumbago problems
 - ▶ made from 25 herbs
 - ▶ **horse chestnut** (*Aesculus hippocastanum* seed and flower extract)
 - ▶ **comfrey** (*Symphytum officinale* root)
 - ▶ *Arnica montana*, *Juniperus communis*, *Calendula officinalis*, *Echinacea purpurea*, *Agrimonia eupatoria*,...
 - ▶ **chilli extract**, cinammon, camphor, lavender, rosemary, thyme, mint, chamomile,...



The exact composition see at: <http://www.herbamedicus.ch/products/>

PHYTOPHARMACEUTICALS

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▶ HORSE BALSAM Cooling (Herbamedicus, Switzerland)

- ▶ natural nourishment for joints, muscles and spine
- ▶ effective for relief and refreshment of pulled muscles and „heavy“ legs
- ▶ made from 25 herbs, similar composition as the „warming“
 - ▶ with Eucalyptus extract – cooling effect
 - ▶ without Capsici extract (!)



▶ fortified versions

- ▶ HORSE BALSAM Forte Warming
- ▶ HORSE BALSAM Forte Cooling



PHYTOPHARMACEUTICALS

used to treat MUSCULAR and JOINT INJURIES

▶ HORSE BALSAM Warming

Herbal Liquid with Spirit
(Herbamedicus, Switzerland)

- ▶ real relief for muscles, back and knees
- ▶ The balsam initiates **intensive warming** and perfusion, thus increasing the effect of the active agents and accelerating convalescence.
- ▶ Spirit contained in the product evaporates after application, and therefore the active ingredient more quickly get to the skin and hasten the onset of action



▶ HORSE BALSAM Cooling

Herbal Liquid with Spirit

- ▶ The balsam initiates **intensive cooling**

