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FACT SHEET

Natural Products: Phytotherapy and Aromatherapy

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Medicinal Herbs and Their Extracts as Part of Integrative Treatment for Patients with Chronic Non-Malignant Pain

The medicinal use of plants, phytotherapy, has been used empirically since mankind has existed and has been recorded in the writings of many ancient cultures for at least five thousand years. It is often forgotten that plant-based medicine is a link between standard modern medicine and many ancient healing practices. Plants have been the foundation of much of modern-day pharmacology and the therapeutic effects of many plants have been proven through clinical and pharmacological research.

Phytotherapy may use the entire plants, plant parts or their preparations derived through various procedures such as essential oils, liquid or dried extracts and decoctions. Phytotherapy may include only a single plant or mixtures of plants and extracts. These products may be delivered through many routes: orally in tablets, capsules, tinctures or teas, topically on skin or mucous membranes, or inhaled. Aroma-therapy uses aromatic substances derived from plants and is a subdomain of phytotherapy.

"Integrative medicine" refers to a holistic medical practice, striving to create an inclusive space where the choice of treatment options combines standard medical practices with non-standard care and disciplines that might even include ancient practice traditions. The choice of treatment options is based on the patient's medical needs and preferences. There is a robust basic science literature for many integrative medicine practices, which demonstrates plausible mechanisms for the desired outcomes. Many of these practices impact epigenetics and the autonomic nervous system allostatic mechanisms[i,ii]. There is increasing interest in expanding the clinical evidence base for integrative options for care including phytotherapy.

Phytotherapy is an integral part of integrative medicine as well as foundational to many developments in standard modern medicine. A well-known example for drug development based on phytotherapy is the successful development by Bayer AG of acetylsalicylic acid, the painkiller of the 19th and 20th centuries, which was based on the derivatives of salicylic acid extracted from white willow bark. Willow bark (Salix alba) was intensively used in Europe since the mid-18th century[iii], but the first records of the medical use – together with myrtle (Myrtus communis) – date back to 1543 AD in the Ebers Papyrus: "to relieve inflammatory conditions and painful symptoms"[iv]. White willow bark is still available as an herbal supplement and causes fewer gastrointestinal adverse effects than its pharmacologic cousin.

Regarding nociceptive pain of the musculoskeletal system with primary or secondary inflammation, oral herbal medicines such as devil's claw extract (Harpagophytum procumbens[v], frankincense (Boswellia serrata)[vi] and turmeric (Curcuma longa)[vii,viii] are nowadays clinically established and approved through clinical studies as well.

For the painful muscle spasticity in multiple sclerosis, a preparation of tetrahydrocannabinol (THC) and cannabidiol (CBD) from Cannabis sativa was developed with good efficacy (p = 0.0002)[ix]. On the other hand, a general use of medicinal cannabis for central and peripheral neuropathic pain or chronic pain is currently not advisable due to the psychotropic side effects of THC (Number needed to treat (NNT) 24 and number needed to harm (NNH) 4)[x].

Research into medical cannabinoids is currently focusing on CBD, which has anti-inflammatory properties in animal models. A positive impact on neuroinflammatory pathomechanisms, such as glial cell activation and resulting disturbed intersynaptic glutamate homeostasis, is postulated. The underlying mechanism is essential to understand both central pain sensitization and chronification[xi] – as well as the cause for neurodegenerative diseases[xii].

For the treatment of peripheral neuropathic pain, high dose capsaicin patches (8%) are standard care, though pooled NNT 10.6 is low[xiii] and NNH 2.5 for adverse skin reactions is high[xiv]. Capsaicin mouthwash solution (0.02%) also seems to produce a relevant pain reduction in "burning mouth syndrome" by desensitizing the TRPV1 receptor as well[xv].

Phytotherapeutics are effectively used to treat various neuro-psycho-vegetative symptoms accompanying chronic pain, as many patients suffer from extensive intolerance of standard care drugs. Taking a more detailed patient history often reveals an association between chronic pain and other "central sensitivity syndromes"[xvi]. Which then also suggests a significant nociplastic pain component as one feature a generalized amplification of perception[xvii]. Lavender oil (Lavandula angustifolia) is used for anxious[xviii] and St. John's wort (Hypericum perforatum) for depressive symptoms[xix], which can be recorded and monitored easily and systematically with the PHQ-4 questionnaire. A moderate effect of chamomile (Matricaria chamomilla L.) has been found for both symptom complexes[xx]; the same applies to Withania somnifera, which originates from Ayurvedic medicine, even if the specific mechanism of action is still unclear[xxi]. Ginkgo biloba is in use for relieving neurosensory symptoms, well proven e.g. for patients with dementia[xxii] and peppermint oil (Mentha piperita) (10%) for chronic, primary headache[xxiii] as well as for irritable bowel syndrome (NNT 7)[xxiv]. Valerian (Valeriana officinalis) and hops (Humulus lupulus) are clinically established for the treatment of sleep disorders[xxv].

Both doctors and non-medical practitioners usually recommend oral preparations. Aromatherapeutics and locally applied phytotherapeutics are possible parts of body-centred treatments (ergotherapy / physiotherapy) and are additionally used by other advanced nurse practitioners – typically in oncology and palliative care. In addition to pharmacological effects, the local application of plant products or aromatherapeutics integratively helps to boost self-awareness, self-care, mindfulness and enjoyment of life, i.e. well-proven components of a successful multimodal pain therapy[xxvi,xxvii].

Most preparations can be obtained without a prescription, empowering the patient to independently address their symptoms, e.g. with ointments or tea infusions. Many of the teas, creams and ointments have as part of their effects, the sensory experience of drinking the tea or applying the topical preparation. In the long run, the planning of a patient owned medicinal herbal garden/balcony can be encouraged. This would be an extended approach with regional plants in order to integrate further meditative and body-centred elements into self-treatment.

An "anti-inflammatory" lifestyle[xxviii] entails dietary adjustments (e.g. weight loss in the case of obesity, Mediterranean cuisine, herbals with bittering agents and use of omega-3 fatty acids[xxix]) and regulatory measures: daily structure, sleep hygiene, stress reduction, relaxation techniques, meditation and mindfulness exercises (e.g. MBSR, Body Mind Medicine, "Shinrin Yoku" aka forest bathing) as well as regular physical exercise adapted to the underlying disease[xxx]. It is a subsequent continuation of treatment concepts that are linked by (medicinal) plants. Last but not least, the use of herbal preparations and a dietary adjustment can promote a better understanding of the long term dependency between human beings and nature itself, in terms of a sustainable lifestyle and responsible use of available resources worldwide[xxxi].

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