

A Review On “Comparison and Standardization of Herbal Product Used in Pain Management”

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Abstract: *Herbal remedies and other complementary and alternative therapies are not presently covered by the mainstream healthcare system. Certain alternative therapies, like herbal medicine, may be reclassified as practices of conventional medicine as the field gains worldwide recognition and a growing consumer base across all age groups, backed by clinical trials and scientific evidence. Adults who use herbal medicine frequently do so for pain relief. Herbal remedies, however, raise questions about safety and may reduce the effectiveness of conventional treatments. Regulated or not, the use of mechanisms of action is unfortunately poorly understood, unreported to medical professionals, and unregulated. The purpose of this review is to gather widely used and accessible herbal remedies that can be used either in place of or in addition to traditional pain management techniques. Clinical trials on pain management are used to evaluate efficacy and safety. The ensuing interactions between herbs and drugs are examined, including cytochrome modulation, synergistic and additive effects, and contraindications. In addition to optimizing and integrating herbal medicine and other complementary and alternative medicines into patient care when necessary, practitioners should be able to integrate self-management into the overall treatment plan for patients with chronic pain.*

Keywords: Herbal remedies

I. INTRODUCTION

From prehistoric times till the present, nature has provided the basic ingredients for medicines. People all throughout the world have a unique understanding of the natural resources that support their lives, including a great deal of information about plants. The medical needs of approximately 85% of the global population are met by traditional medicines. To prevent major health issues, it is imperative to preserve the plant's efficacy, safety, and quality in its products¹. In Indian healthcare, ayurveda still has a significant influence over modern medicine, especially when it comes to treating a range of chronic illness issues. Traditional medicine, according to the World Health Organization, encompasses a range of health practices, approaches, knowledge, and beliefs that include manual treatments, exercises, spiritual therapies, and medications derived from plants, animals, or minerals seeds, stems, wood, bark, roots, rhizomes or other plant parts, which may be entire, fragmented or powdered. Herbal materials include, in addition to herbs, fresh juices, gums, fixed oils, essential oils, resins and dry powders of herbs. In some countries, these materials may be processed by various local procedures, such as steaming, roasting or stir baking with honey, alcoholic beverages or other materials. Herbal preparations are the basis for finished herbal products and may include comminuted or powdered herbal materials, or extracts, tinctures and fatty oils of herbal materials. They are produced by extraction, fractionation, purification, concentration, or other physical or biological processes. They also include preparations made by steeping or heating herbal materials in alcoholic beverages and/or honey, or in other materials. Finished herbal products consist of herbal preparations made from one or more herbs. If more than one herb is used, the term “mixture herbal product” can also be used. Finished herbal products and mixture herbal products may contain excipients in addition to the active ingredients. However, finished products or mixture herbal products to which chemically defined active substances have been added, including synthetic compounds and/or isolated constituents from herbal materials, are not considered to be herbal. Herbal medicines are used very commonly in various health practices or therapies of Traditional Medicines like Chinese medicine, Ayurveda, Unani, Naturopathy, Osteopathy and Homeopathy.

PAIN

Pain is an unpleasant sensory and emotional feeling accompanying existing or impending tissue damage or referenced to such damage. Pain is the most common experience reported by patients, and patient anxiety is a form of warning signal. It is a sensual and perceptual phenomenon, which causes suffering and emotional state of risks connected with anxiety. Pain has many forms. It warns against damage to the body, which is important for avoiding injuries and consequently for survival. Pain not caused by acute injuries can be unpleasant for the patient, or it can alter a person's life, reduce the quality of life.

Types of pain

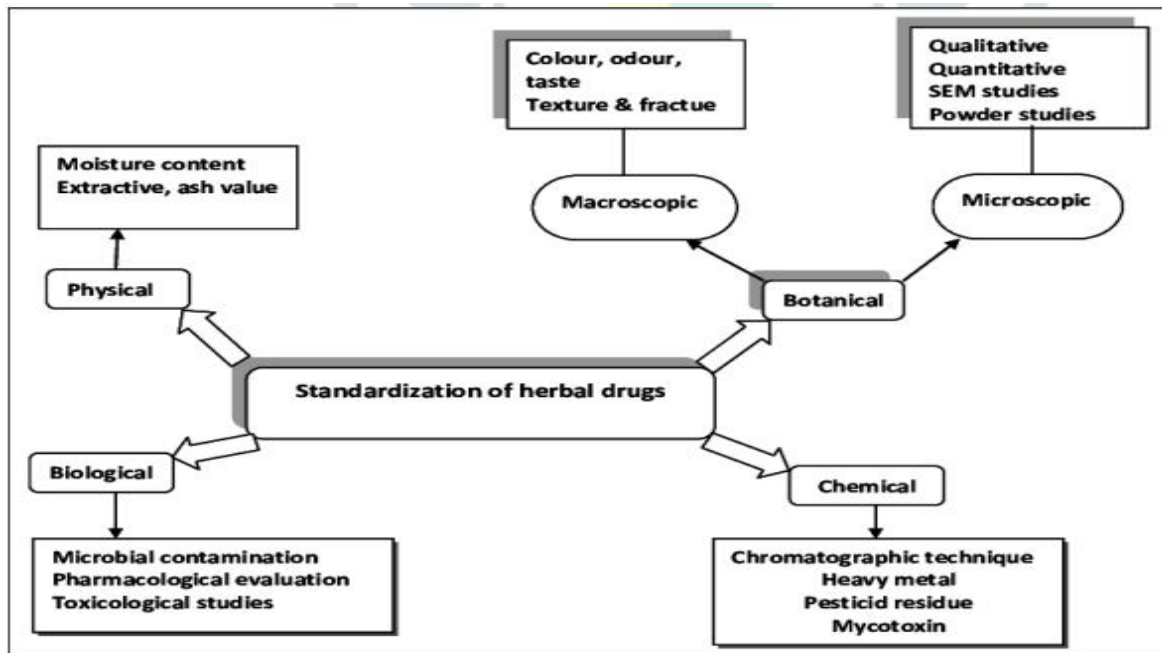
<p>Acute Pain • Pain with sharp and well-defined onset. • Short duration.</p> <p>Etiology : Nonreceptive Inflammatory • Serves an adaptive</p> <p>Function. • Disappears with tissue healing. • Usually responds well to analgesics and Anti-inflammatory agents.</p> <p>Examples of Acute Pain • Acute postoperative pain • Post trauma -fractures -soft tissue injury -flail chest-stab injury • Labour pain • Post burn • Pain associated with cancer, acute zoster, neurological diseases, hematological disorder</p>	<p>Chronic pain • Persists month beyond the usual course of acute disease or a reasonable time for an injury to heal usually taken to be 3 months.</p> <p>Etiology Inflammatory Neuropathic Dysfunctional • Usually does not serve any adaptive function. • Can be difficult to treat.</p> <p>Examples of chronic pain • Persistent postsurgical pain • Neuropathic pain -nerve injury pain -nerve compression pain -complex regional pain syndrome</p>
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Mechanism

It is important to distinguish between the mechanisms underlying nonreceptive pain and persistent neuropathic pain due to their greater complexity. The main cause of neuropathic pain is damage to the nerves that make up the nervous system's pain pathways, which changes how the body interprets pain. This typically results in an increase in the transmission of pain signals, to the point where pain may be felt in response to seemingly harmless stimuli. Increased excitability and a heightened nervous response to unpleasant stimuli characterize hyperalgesia, a type of persistent inflammatory pain that heightens sensitivity to pain. Additionally, certain psychological variables known as modulatory influences may have an impact on the perception and severity of pain. These consist of anxiety, fear, and stress. It is generally accepted that elevated levels of these factors have the potential to trigger, exacerbate, or even extend pain episodes in vulnerable individuals.

II. STANDARDIZATION

"Standardization" describes the actions done in quality control and manufacturing to guarantee a constant level of quality. Additionally, it covers the entire field of study, from the conception of plants to their use in medicine. It also refers to incorporating excipients or combining herbal prescriptions or drug preparations to achieve a particular constituent content in the herbal drug preparation. Establishing a set of standards or inherent characteristics, constant parameters, and definitive qualitative and quantitative values that carry an assurance of quality, efficacy, safety, and reproducibility is the process of standardizing herbal medicines. It is the process by which technical standards are created and approved. Through experimentation and observation, specific standards are developed, which eventually leads to the process of prescribing a set of qualities.



Standardization of herbal drug

III. STANDARDIZATION AND QUALITY CONTROL OF HERBAL CRUDE DRUGS ACCORDING TO WHO

According to WHO, it's a procedure that includes physicochemically evaluating crude drugs, which includes aspects like crude material selection and handling, finished product safety, efficacy, and stability assessment, documentation of safety and risk based on experience, consumer product information, and product promotion.

Macro and Microscopic Inspection: To determine the correct variety and look for adulterants.

Foreign Organic Matter: To obtain the medication in its purest form, remove any matter besides the source plant.

Moisture Content: Monitoring the moisture content aids in preventing product deterioration.

Extractive Values: These represent the approximate concentration of the chemical components of the crude medication.

Qualitative Chemical Evaluation: This includes identifying and characterizing crude drugs in relation to their constituent phytochemicals.

Chromatographic Analysis: This involves identifying the raw drug by using its primary chemical constituent as a marker.

Qualitative Chemical Evaluation: Standards for determining the quantity of the main constituent class.

Toxicological studies: minimizing the impact of pesticide residue, potentially toxic elements, and the Microbial Count approach in the final product

APPLICATIONS

- Adulterant identification: Using eight caged xanthenes as chemical markers, an HPLC-UV method was used to distinguish an adulterant of gamboges from the genuine sample.
- Distinguishing herbal remedies from various sources
- Selecting the ideal time for harvesting
- Verification of the locations for collection;
- Appraisal of the methods used in processing;
- Evaluation of the quality of the herbal parts;
- Identification and quantitative assessment of proprietary products;

- Stability test of proprietary products: Stability tests are used to assess the quality of products over time and establish the recommended shelf life.
- Herbal intoxication diagnosis: Toxic elements can be utilized as chemical markers in screening techniques, such as the quick identification of acute concealed aconite poisoning in urine samples using HPLC-MS.

Final product

A thorough description of the manufacturing process, formula, and excipient quantity should be provided. To guarantee the product's constant quality, a finished product specification needs to be established. The final product must meet all standard specifications for specific dosage forms.

Consistency

It is necessary to test the product's physical and chemical stability in the container under which it will be marketed under specific storage conditions in order to determine its shelf life.

IV. PERFORMANCE EVALUATION

Because herbal medicines have been used for a very long time in many different cultures, they are generally considered safe. On the other hand, there are case reports of severe side effects following the administration of herbal products. The cause of the toxicity has frequently been linked to adulteration and pollutants. But some of the plants that are used to make herbal remedies can also be extremely toxic. If not thoroughly evaluated, herbal medications may have a risk of negative side effects as well as drug-drug and drug-food interactions. Therefore, the top goal in herbal research is to evaluate the safety of herbal products.

V. HERBAL USED IN PAIN MANAGEMENT

ROSEMARY ESSENTIAL OIL

Another essential oil that may help with pain relief is rosemary. According to some researchers, the rosemary plant, *Rosmarinus officinalis* L., may be used to treat seizures, headaches, and muscle and bone pain. Rosemary has been shown to improve memory, ease smooth muscle tension, and lower inflammation.

Use a carrier oil, like olive oil, to dilute essential oils. For every ounce of carrier oil, use three to five drops of essential oil.

The herb may influence opioid receptors in the brain, which are involved in pain perception, according to the research team. According to a 2013 clinical study Trusted Source, rosemary oil helped those going through opium withdrawal feel less pain.



CLOVES



Cloves, which come from the *Eugenia caryophyllata* plant, have long been used as a natural toothache remedy. Clove gel is just as effective as benzocaine gel, a topical gel that dentists frequently use to lessen needle pain, according to a 2006 study Trusted Source. Benzocaine gel, clove, or a placebo was administered by the researchers to the inside of the participants' mouths. With gels containing clove and benzocaine, but not with placebos, they reported reduced pain levels. To find out how well cloves could relieve other types of pain, more research is required. Additionally, according to researchers, clove may have antiviral, antifungal, antibacterial, and antioxidant properties Trusted Source.

GINGER



Post on Pinterest After exercise, consuming ginger may hasten recovery and lessen inflammation. *Zingiber officinale*, the root of ginger, has potential as a natural analgesic. According to a 2015 systematic review Trusted Source, when taken for at least five days, ingesting two grams of ginger daily significantly decreased muscle soreness from running and resistance training. Additionally, the researchers hypothesize that ginger may lessen exercise-related inflammation and hasten recovery Supplements containing ginger .

CAPSAICIN

Capsaicin, which is found in chili peppers, is also used by people as a natural pain reliever. When applied topically, this substance may produce a slight burning or tingling sensation. Topical creams and patches containing capsaicin are important tools for managing pain, according to a 2011 study (Trusted Source). Capsaicin is an ingredient in many pain relievers. Although the exact mechanism of action of this pain reliever is unknown, some researchers theorize that it acts on the nociceptor fibers to lessen the skin's sensitivity to pain. It is these nerves that transmit pain messages.



FEVERFEW



Feverfew is a medicinal plant that is also known by the names featherfew and bachelor's buttons. It has been traditionally used to increase breast milk production and treat rheumatoid arthritis, fever, stomach aches, toothaches, and migraine headaches.

Compounds in feverfew may lessen inflammation and spasms in the muscles. According to some researchers, sesquiterpene lactones and flavonoids are the main active ingredients. According to a 2011 study review Trusted Source, feverfew leaves and flowers have analgesic, or pain-relieving, qualities.

VI. CONCLUSION

Herbs used to treat pain will become more widely known as we learn about herbal extracts and isolates and employ generally recognized scientific techniques to investigate plants and their extracts from a physiological and pharmacological point of view.

The current study found that the Kani tribal communities continue to frequently use traditional medicines. Effective pain treatment has always been a difficult clinical issue, even with the history of pain management. Numerous studies have focused on pain management, particularly on novel therapeutic approaches and the development of Ayurvedic (herbal) acute and chronic pain treatment strategies.

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