

Advanced herbal drug technology

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ABSTRACT:

The People are growing more interested in herbal medicines today because of their numerous advantages. Herbal formulations are now widely recognised as successful therapies for a variety of diseases. More than 80% of the world's population relies on herbal remedies, despite the fact that the majority of these uses are unconventional. Medications and items to support a healthy lifestyle. An surge in the use of herbal products has also resulted in a number of product abuses and adulterations, which have dissatisfied manufacturers and consumers and, in some cases, had disastrous outcomes. The development of trustworthy analytical methods that can quantitatively evaluate marker/bioactive compounds and other critical elements and consistently profile the phytochemical composition presents considerable challenges for scientists. The current review article discusses the various convectional methods and more recent developments. In fields including DNA fingerprinting, metabolomics, differential pulse polarography, chemometrics, X-ray diffraction, and others, recent advancements have been noticed. The standardisation of herbal medicines has benefited from the use of chromatographic and capillary electrophoresis techniques, it is also reported.

I. INTRODUCTION:

“” designates a botanical or plant-based preparation, whereas “medicine” refers to a substance with nutritive, curative, or preventative benefits. Thus, “herbal medicines” refers to plant-based products with medicinal, preventive, or nutritional properties. Herbal medicine is an interdisciplinary branch of herbal medicine and Ayurveda because it includes all areas of herbal medicine related to botany, medicinal plant research, pharmacognosy, phytochemistry, phytotherapy, botanical medicines, Ayurveda, natural chemistry, agriculture science, Unani medicine, biotechnology, and biochemistry. A person who works with plants, especially therapeutic herbs, is known as a herbalist. Herbal journals discuss the use of plants to treat sickness.

Objectives:

1. Understanding the origins of herbal remedies, from their cultivation to their finished products, is the first objective.
2. Be familiar with the WHO and ICH standards for evaluating herbal medicines.
3. Know the herbal cosmetics, natural sweeteners, nutraceuticals.
4. Support GMP and the patenting of herbal medicines.



Different techniques for identifying plants include:

(1) Expert Determination :

which is the most dependable and accurate method. Specialists have typically treated the group at issue (monographs, revisions, synopses), and it's likely that more recent floras or manuals reflect the taxonomic ideas of the specialists. Experts are frequently found in botanical gardens, herbaria, museums, colleges, and universities, among other places. Although very effective, this procedure has limitations in that it delays identification and takes up professionals' important time.

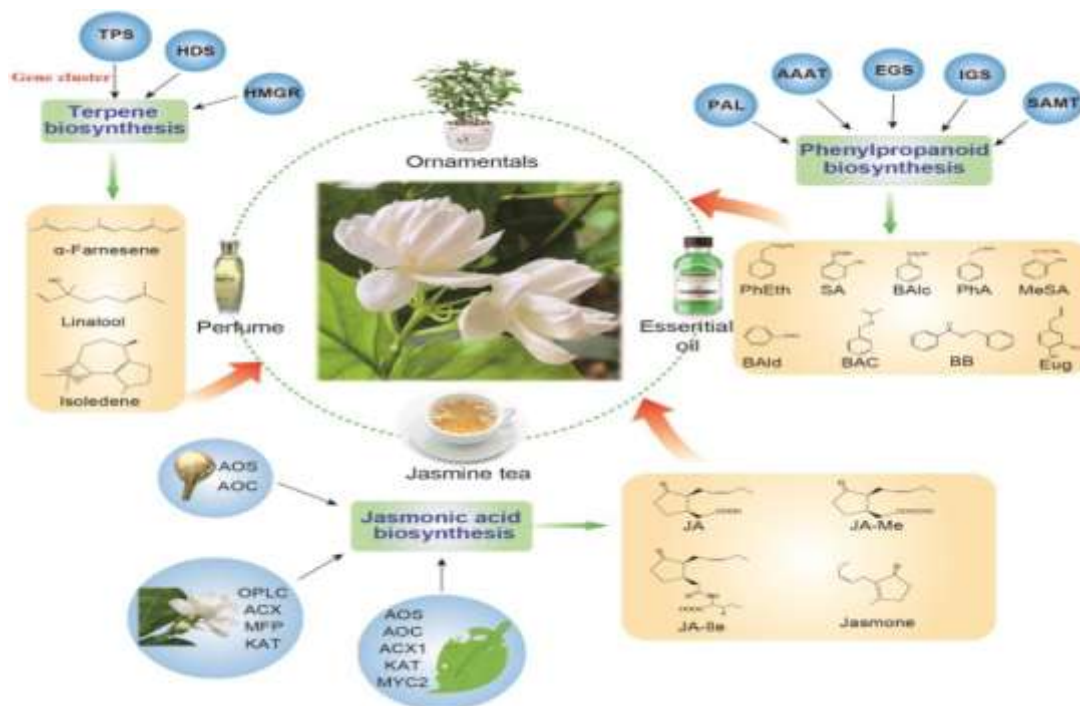
(2) Recognition:

In terms of dependability, it comes close to expert judgement. The identifier's significant prior expertise with the relevant plant group forms the basis for this.

(3) Comparing:

A third method involves contrasting an unidentified object with known samples, images, drawings, or descriptions.

Although a reliable procedure, it may be extremely time-consuming or even impossible due to the lack of equivalent materials.



Plant identification:

A quality control process called herb authentication ensures that the proper sorts of plants and plant components are utilised as the basis for herbal medications. Herbal raw materials need to be properly validated in order for herbal remedies to be secure and efficient. The comparison of morphological characteristics that can be seen with the unaided eye or under low magnification with descriptions of the plant or botanical drug in floras or monographs is known as a macroscopic inspection. For macroscopic identification, traits like the size, shape, and colour of leaves (or leaf fragments), flowers, or fruits are frequently used.

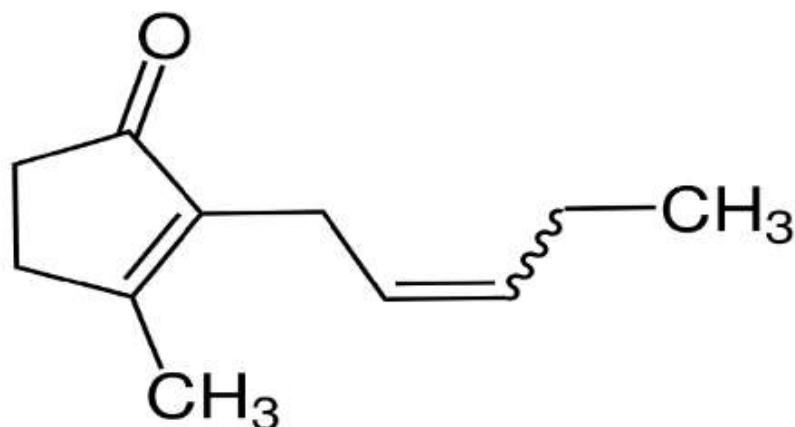
Microscopic:

The inquiry is focused on anatomical features of plant material that can only be observed under a microscope. Under a microscope, herbal medications can be recognised by their trichome structure and form, stomata placement in the epidermis, the presence or absence of mucilage, starch, or lignin, or the existence of tissues with different cell types. The separation of chemical components in a mixture is called chromatography. There are numerous chromatographic procedures, however they are all founded on the same fundamental ideas. The bulk of plant-related Pharmacopeial monographs include. Since thin-layer chromatography (TLC) is often employed in the authentication of herbal items, most

Pharmacopeial monographs for plants include a TLC identification test. TLC separates combinations of materials to produce a plate coated in silica gel that bears the “fingerprint” of the materials that were separated. This fingerprint can be compared to a pure reference substance or a

genuine sample. High-performance liquid chromatography, or HPLC, is a different type of chromatography that is widely used in the identification and analysis of herbal components. Another method used specifically for fatty acids and essential oils is gas chromatography.

Structure of jasmine



Isolation and purification techniques:

Chromatographic Methodology:

Introduction:-

Since prehistoric times, people have used hundreds to thousands of native plants to treat illnesses on all continents. Many plants produce chemicals that are important for maintaining human and animal health. These include aromatic compounds, the majority of which are phenols or their derivatives with an oxygen substitution, such as tannins [1]. Unwell animal Try to forage plants that are high in secondary metabolites like alkaloids and tannins. There is a good case to be made for animals in the wild using these phytochemicals to treat themselves because they frequently have antiviral, antibacterial, antifungal, and anthelmintic activities. Around 80% of the world’s population still relies on herbs and other traditional remedies for their basic medical needs, according to a World Health Organisation (WHO) estimate. Health-improving dietary supplements known as herbal medicine are available as tablets, capsules, powders, teas, extracts, and fresh or dried plants. Herbs are generally thought to be safe, and more individuals are consuming them without a prescription.

Column chromatography :

A chromatography technique used to separate a single chemical compound from a

mixture in chemistry. Based on the differential adsorption of compounds to the adsorbent, chromatography can separate substances into fractions by allowing the compounds to pass through the column at varying rates.

Thin Layer Chromatography :

Chromatography is a method for isolating and analysing biomolecules from a complex mixture. This separation procedure is composed of a fixed phase and a mobile phase. The stationary phase is followed by the mobile phase, which is made up of the combination that has to be separated. These two phases can combine to form solid-liquid, liquid-liquid, or gas-liquid phases

Drugs for Advanced Technology :

1.Jasmine (jasminium) :

Your body receives information from the limbic system, which controls the neurological system, when you breathe in the molecules of jasmine. You can keep a jasmine plant in your room to help with anxiety and depression, or you can use the essential oil to fill a diffuser with the fragrance. Jasmine can aid with anxiety, depression, focus, sleep, hormone balance, and infection risk reduction in addition to anxiety and depression. This demonstrates the jasmine plant's versatility and its potential to enhance your quality of life.

2. SHANKPUSHPI:

The powerful memory enhancer and brain tonic known as Shankpushpi—also known by the names Shankhini, Kambumalini, Samkhapushpi, Sadaphuli, and Sankhaphuli—actively works to increase intelligence and brain function. The plant was given the name shankpushpi because of its shankh or conch-shaped blooms. Additionally, it aids in improving focus, learning potential, mental tiredness, sleeplessness, stress, anxiety, sadness, etc. Due to its antidepressant effect, it enhances mental wellness and could assist in controlling depression. According to Ayurveda, Shankpushpi relieves tension and anxiety while calming the brain. Its Medhya (improves intelligence) characteristic also helps memory by functioning as a brain tonic. Take Shankpushpi powder with warm milk or water to assist improve focus and memory. Additionally, shankpushpi pills and capsules can enhance cognitive abilities. Ayurvedic Shankpushpi Syrup is a memory and mental acuity enhancer. It helps with mental sluggishness, forgetfulness, memory loss, poor retention, etc. However, medications or supplements can only enhance alertness, attention span, brain functioning, nerve coordination, and the capacity of the brain to retain information; they may not be able to alter your procrastinating patterns. Daily brain exercises are therefore necessary to improve cognitive capacities. Capabilities. Shankpushpi has the status of a nerve tonic in Ayurveda.

II. CONCLUSION

Plants, herbs, and ethnobotanicals have been utilised for health promotion and disease treatment since the dawn of humans and are being used today in many parts of the world. The foundation of contemporary medicine today is made up of plants and other natural resources, which also significantly influence how commercial drug preparations are made today. Around 25% of medicines given globally are made from plants. Nevertheless, plants are frequently employed in medicine rather than pharmaceuticals. Some people prefer using herbal remedies as a form of medicine. Others utilise herbs as a complementary therapy to traditional medications. However, the only accessible or inexpensive form of healthcare in many underdeveloped nations is traditional medicine, of which herbal medicine is a vital component. Regardless of the motivation, those who use herbal remedies should be sure that the items they purchase are secure and contain what

they claim to, whether this is a specific herb or a specific quantity of the herb. A particular botanical ingredient. Science-based information on dose, contraindications, and efficacy should also be provided to consumers. Global legal harmonisation is required to do this in order to direct the ethical production and distribution of herbal medicines. If a plant has adequate scientific support for its advantages, then suitable legislation should permit this to be used to promote its usage so that these benefits can be realised for the promotion of public health and the treatment of disease.

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