

An Analysis of Botanical Identification and Conservation of Indian Medicinal Plants and Herbs: Progress and Prospects

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Abstract – Medicinal plants have been utilized in basically all cultures as a wellspring of medicine. Affirmation of the wellbeing, quality, and viability of medicinal plants and herbal items has now turned into a key issue in industrialized and in creating countries. The far reaching utilization of herbal cures and healthcare arrangements is portrayed in the Vedas and the Bible. Medicinal Plants have been utilized for a large number of years to flavor and conserve food, to treat health disorders and to counteract diseases including pandemics. The information of their recuperating properties has been transmitted throughout the hundreds of years inside and among human networks. Dynamic mixes created amid secondary digestion are generally in charge of the biological properties of plant species utilized all through the globe for different purposes, including treatment of infectious diseases. Right now, information on the antimicrobial activity of various plants, so far thought about experimental, have been logically affirmed, with the expanding number of reports on pathogenic microorganisms resistant to antimicrobials. Medicinal plants are comprehensively important wellsprings of herbal items, and they are vanishing at a fast. This article audits worldwide patterns, improvements and prospects for the techniques and systems concerning the conservation and feasible utilization of medicinal plant assets to give a solid reference to the conservation and practical utilization of medicinal plants.

Identification of a species is the most basic errand which requires utilization of nature, learning and expertise. An accurately identified species is given acknowledgment with the assistance of a suitable name. Terminology of life forms is hence a way to manage the cost of correspondence about them and to institutionalize and compose an unambiguous reference system about them. Insufficiency and incorrectness of gauge data with respect to delimitation of characteristic biotic elements and their acknowledgment are probably going to amplify little gross blunders of relationship and extrapolation to extensive measurements while digitalizing information for species dispersion maps and their utilitarian points of view.

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INTRODUCTION

The expression "medicinal plant" incorporate different types of plants utilized in herbalism ("herbology" or "herbal medicine"). It is the utilization of plants for medicinal purposes, and the investigation of such employments.

"Herb" has been gotten from the Latin word, "herba" and an old French word "herbe". Presently a days, herb alludes to any piece of the plant like organic product, seed, stem, bark, flower, leaf, shame or a root, just as a non-woody plant. Prior, the expression "herb" was just connected to non-woody plants, including those that originate from trees and bushes. These medicinal plants are likewise utilized as food,

flavonoid, medicine or aroma and furthermore in certain otherworldly activities.

Plants have been utilized for medicinal purposes some time before ancient period. Antiquated Unani compositions Egyptian papyrus and Chinese works depicted the utilization of herbs. Proof exist that Unani Hakims, Indian Vaid and European and Mediterranean cultures were utilizing herbs for more than 4000 years as medicine. Indigenous cultures, for example, Rome, Egypt, Iran, Africa and America utilized herbs in their recuperating customs, while other created customary restorative systems, for example, Unani, Ayurveda and Chinese Medicine in which herbal treatments were utilized systematically.

Customary systems of medicine keep on being broadly rehearsed on numerous accounts. Population rise, insufficient supply of drugs, restrictive expense of treatments, reactions of a few manufactured drugs and improvement of protection from at present utilized drugs for infectious diseases have prompted expanded accentuation on the utilization of plant materials as a wellspring of medicines for a wide assortment of human illnesses.

Among antiquated civilisations, India has been known to be rich vault of medicinal plants. The woods in India is the main storehouse of expansive number of medicinal and sweet-smelling plants, which are to a great extent gathered as crude materials for assembling of drugs and perfumery items. Around 8,000 herbal cures have been arranged in AYUSH systems in INDIA. Ayurveda, Unani, Siddha and Folk (innate) medicines are the significant systems of indigenous medicines. Among these systems, Ayurveda and Unani Medicine are most created and generally drilled in India.

As of late, WHO (World Health Organization) evaluated that 80 percent of individuals overall depend on herbal medicines for some part of their primary health care needs. As per WHO, around 21,000 plant species have the potential for being utilized as medicinal plants.

According to information accessible more than seventy five percent of the total populace depends for the most part on plants and plant extricates for their health care needs. Over 30% of the whole plant species, at one time or other were utilized for medicinal purposes. It has been assessed, that in created countries, for example, United States, plant drugs comprise as much as 25% of the absolute drugs, while in quick creating countries, for example, India and China, the commitment is as much as 80%. In this way, the financial significance of medicinal plants is substantially more to countries, for example, India than to rest of the world. These countries give two third of the plants utilized in present day system of medicine and the health care system of rustic population rely upon indigenous systems of medicine.

Treatment with medicinal plants is viewed as sheltered as there is no or insignificant symptoms. These cures are in a state of harmony with nature, which is the greatest preferred standpoint. The brilliant reality is that, utilization of herbal treatments is free of all ages gatherings and the genders.

The old researchers just trusted that herbs are just answers for fix various health related issues and diseases. They led exhaustive examination about the equivalent, tested to touch base at exact decisions about the adequacy of various herbs that have medicinal esteem. The greater part of the drugs, along these lines defined, are free of symptoms or responses. This is the motivation behind why herbal treatment is developing in prominence over the globe.

These herbs that have medicinal quality give balanced intends to the treatment of numerous inward diseases, which are generally viewed as hard to fix.

Medicinal plants, for example, Aloe, Tulsi, Neem, Turmeric and Ginger fix a few regular diseases. These are considered as home cures in numerous pieces of the country. It is well established actuality that heaps of shoppers are utilizing Basil (Tulsi) for making medicines, dark tea, in pooja and different activities in their everyday life.

In a few pieces of the world numerous herbs are utilized to respect their lords appearing as an image of karma. Presently, subsequent to finding the role of herbs in medicine, heaps of purchasers began the plantation of tulsi and other medicinal plants in their home gardens.

Medicinal plants are considered as a rich assets of fixings which can be utilized in drug advancement either pharmacopoeial, non-pharmacopoeial or manufactured drugs. A section from that, these plants play a basic role in the advancement of human cultures around the entire world. In addition, a few plants are considered as essential wellspring of sustenance and as a result of that they are suggested for their remedial qualities. A portion of these plants incorporate ginger, green tea, walnuts, aloe, pepper and turmeric and so forth. A few plants and their subsidiaries are considered as critical hotspot for dynamic fixings which are utilized in ibuprofen and toothpaste and so on.

Aside from the medicinal uses, herbs are additionally utilized in characteristic color, bother control, food, fragrance, tea, etc. In numerous countries various types of medicinal plants/herbs are utilized to keep ants, flies, mice and escape far from homes and workplaces. Presently a day's medicinal herbs are imperative hotspots for pharmaceutical assembling.

Formulas for the treatment of basic sicknesses, for example, loose bowels, stoppage, hypertension, low sperm count, dysentery and weak penile erection, piles, coated tongue, menstrual disorders, bronchial asthma, leucorrhoea and fevers are given by the conventional medicine experts all around successfully.

In the course of recent decades, there has been a gigantic increment in the utilization of herbal medicine; be that as it may, there is as yet a critical absence of research information in this field. Along these lines since 1999, WHO has distributed three volumes of the WHO monographs on chose medicinal plants.

Identification of a species needs utilization of sense, information and ability. Identification is in this way the workmanship and science of perceiving a living substance and recognizing it from others utilizing a

fitting name. Institutionalized classification of every living being empowers correspondence about a species by a solitary or one of a kind name and association of an unambiguous reference system about the components that establish diverse plant-, creature and microbial parts of biodiversity and bioresources. Identification of a species and its undercategories truly represents a genuine test to the stocktaking and evaluation of biodiversity and assets profited there from. Besides the contemporary scholars show insufficient worry in issues of identification of the biological examples and tests they take a shot at. Carelessness to traditional trains when all is said in done and taxonomy or systematics has been yielding deficiency and incorrectness of standard data with respect to delimitation of common biotic substances and their acknowledgment are probably going to amplify little gross mistakes of connection and extrapolation to expansive measurements while digitalizing information for species circulation maps and their utilitarian points of view. One must think about that classification just as conceptualization and delimitation of taxa have expansive ramifications for decent variety evaluation, conservation, phytogeographic reasonings, ideal use and inductions. The occasions of misidentification of species yielding non-wood timberland items (Mukherjee, 2012a) particularly unrefined drugs can regularly demonstrate impeding creating unfriendly impacts even to slaughter a patient. Attentive corruption by absolutely irrelevant species or by firmly related second rate quality species just as unintentional misidentification of species can be harming to the adequacy and quality of the item. Each medicinally valuable species just as other backwoods staying species utilized as wellspring of food, flavors, scrounge, fiber, floss, tars, gums and so forth should have singular personality accurately found out with institutionalized circumscription and terminology. This is essential for quality control and anticipation of contaminated of the item. This genuine test of great importance must be taken up essentially by such traditional control of biological science as taxonomy or systematics connected at the hip with its advanced structure, the biosystematics.

Medicinal plants are all inclusive important wellsprings of new drugs. There are more than 1300 medicinal plants utilized in Europe, of which 90 % are gathered from wild assets; in the United States, around 118 of the best 150 physician endorsed drugs depend on normal sources. Moreover, up to 80 % of individuals in creating countries are absolutely subject to herbal drugs for their primary healthcare, and more than 25 % of endorsed medicines in created countries are gotten from wild plant species. With the expanding interest for herbal drugs, common health items, and secondary metabolites of medicinal plants, the utilization of medicinal plants is developing quickly all through the world.

An exceptionally conservative gauge expresses that the present loss of plant species is somewhere in the range of 100 and multiple times higher than the normal characteristic eradication rate and that the Earth is losing no less than one potential real drug like clockwork. As indicated by the International Union for Conservation of Nature and the World Wildlife Fund, there are somewhere in the range of 50,000 and 80,000 flowering plant species utilized for medicinal purposes around the world. Among these, around 15,000 species are compromised with termination from overharvesting and environment obliteration and 20 % of their wild assets have just been almost depleted with the expanding human population and plant utilization. In spite of the fact that this danger has been known for quite a long time, the quickened loss of species and natural surroundings obliteration worldwide has expanded the danger of elimination of medicinal plants, particularly in China , India, Kenya, Nepal , Tanzania and Uganda.

The conservation and economical utilization of medicinal plants have been examined broadly. Different arrangements of proposals have been ordered with respect to their conservation, including the foundation of systems for species reviewing and status checking, and the requirement for composed conservation rehearses dependent on both in situ and ex situ procedures. For medicinal plants with progressively restricted supplies, maintainable utilization of wild assets can be a compelling conservation elective.

CHARACTERISTICS OF MEDICINAL PLANTS

- Synergic medicine-The elements of plants all collaborate all the while, so their utilizations can supplement or harm others or kill their conceivable negative impacts. Backing of authority medicine-In the treatment of complex cases like malignant growth diseases the segments of the plants turned out to be viable.
- Preventive medicine-It has been demonstrated that the segment of the plants likewise portray by their capacity to counteract the presence of certain diseases. This will decrease the utilization of the chemical cures which will be utilized when the illness is as of now present Dixit, S and Huma, Ali. 2010 checked on, looked into on the antioxi-dant capability of some medicinal plants of root of Central India.

SIGNIFICANCES OF MEDICINAL PLANTS TO HUMAN BEING

Medicinal plants have played a fundamental role in the improvement of human culture, for instance

religions and distinctive services. Huge numbers of the cutting edge medicines are created in a roundabout way from medicinal plants, for instance headache medicine. Numerous food crops have medicinal impacts, for instance garlic. Medicinal plants are assets of new drugs. It is assessed there are more than 250, 000 flower plant species. Examining medicinal plants comprehends plant lethality and shield human and creatures from regular toxins.

Development and conservation of medicinal plants secure biological decent variety, for instance metabolic designing of plants. The medicinal impacts of plants are because of metabolites particularly secondary mixes created by plant species. Plant metabolites include: primary metabolites and secondary metabolites. Phytotherapy is the utilization of plants or plant removes for medicinal purposes (particularly plants that are not part of the ordinary diet). Phytochemistry is the investigation of phytochemicals delivered in plants, depicting the segregation, refinement, identification, and structure of the huge number of secondary metabolic mixes found in plants.

- Thin layer chromatography (TLC)
- Gel (column) chromatography
- High performance of liquid chromatography (HPLC)
- Gas chromatography (GC)
- Mass spectrometry
- Nuclear magnetic resonance

Plant Primary Metabolites - Organic mixes created in the plant kingdom have metabolic capacities fundamental for plant development and advancement delivered in each plant. Incorporate starches, amino acids, nucleotides, unsaturated fats, steroids and lipids

Plant Secondary Metabolites - Organic mixes created in plant kingdom Don't have evident capacities engaged with plant development and improvement. Created in various plant families, in explicit gatherings of plant families or in explicit tissues, cells or formative stages all through plant advancement. Incorporate terpenoids, extraordinary nitrogen metabolite (counting, on-protein amino acids, amines, cyanogenic glycosides, glucosinolates, and alkaloids), and phenolics.

THE NATURE OF MEDICINAL PLANTS

In the plant kingdom, there are a huge number of plants known and obscure, that yield medicine or drugs of extraordinary use to man. These are known as Medicinal or Drug plants. Medicinal plants might be characterized as those plants that are normally utilized in treating and avoiding explicit afflictions and diseases

and that are commonly viewed as destructive to humans.. These plants are either "wild plant species" those developing immediately in self keeping up Populations in normal or semi-characteristic ecosystems and could exist autonomously of direct human activities or the differentiating "tamed plants species" those that have emerged through human activities, for example, choice or rearing and rely upon the executives for their reality. for instance *Aloebarbadensis*.

The medicinal estimation of drug plants is because of essence of some chemical substances in the plants tissue which produce a clear physiological activity on the human body. The most imperative chemical substances are alkaloids, fundamental oils, greasy oil, pitches, adhesive, tannin and gum and so on. The human sustenance depends on the primary result of photosynthesis the sugar, protein triglycerides (fats and oils) however if there should be an occurrence of drugs herbs, ethno medicines, fundamental oils and beautifying agents are gotten from the secondary results of plant digestion, for example, the alkaloids terpenoids, for example, the alkaloids terpanoids and flavonoids. These substances have advanced as reactions of plants to pressure predation and finishing establishing to what is viewed as the huge chemical library of biological systems. In this manner, it is ordinarily "removes" not simply the plants or their parts, for example, natural products, seeds leaves and so on; that are utilized for medicinal impacts. Nonetheless, medicinal plants Possess what is alluded to as neurotic specialty and they accept pathogenomic structure. This implies medicinal herbs can be utilized for various afflictions regarding its on human physiology.

ISSUES IN IDENTIFICATION OF A SPECIES

- I. An identified species might be a piece of another species.
- II. Diverse plant species may have a place with similar species complex.
- III. Two morphologically indistinguishable substances may have a place with various species
- IV. The identification of a species may not count with the logical acknowledgment of that species.

Since the identification of a species must be at standard with logical acknowledgment, it has dependably been a subject of analysis and updates. Regular choice frequently drives the development of new species as qualities supported inside populations may by chance make regenerative segregation between populations. The species issue is by all accounts in an extensive measure identified with a mix of hereditary and natural issues

which should be tended to with certain test methodology. While at present the absolutely hereditary viewpoint of the issue is genuinely very much appreciated, a concurrent comprehension of the biological concern is essential. Hence much seems certain, notwithstanding, that the Linnean species are units of a similar significance biologically as their constituent components are hereditarily. In perspective on the need of keeping the connection among environmental and absolutely hereditary units as a top priority, the terms ecotype, ecospecies, cenospecies were proposed and utilized by Turesson (1922 a, b; 1925) to cover the varieties appeared by populations of indistinguishable species from they are acknowledged in various biological condition winning in nature. Endeavors of Turesson cleared the pathway towards advancement of another type of taxonomy for example biosystematics to determine and delimit each biotic elements (Camp and Gilly, 1943) utilizing displays with glasses of biology held in the casing of hereditary qualities. Parts of rapprochement among taxonomy and biology concern significantly to the philosophical surrounding of biosystematics (Mukherjee, 2009).

CONSERVATION STRATEGIES

Medicinal plant assets are being gathered in expanding volumes, to a great extent from wild populations. In reality, interest for wild assets has expanded by 8– 15 % every year in Europe, North America, and Asia in late decades. There is a limit below which species regenerative limit turns out to be irreversibly diminished. Different arrangements of suggestions identifying with the conservation of medicinal plants have been grown, for example, giving both in situ and ex situ conservation. Common stores and wild nurseries are run of the mill guides to hold the restorative viability of plants in their regular environments, while botanic gardens and seed banks are imperative standards for ex situ conservation and future replanting. The geographic appropriation and biological attributes of medicinal plants must be known to control conservation activities, for example to survey whether species conservation should happen in nature or in a nursery.

Most medicinal plants are endemic species, and their medicinal properties are fundamentally a direct result of the nearness of secondary metabolites that react to upgrades in common habitats, and that may not be communicated under culture conditions. In situ conservation of entire networks allows us to secure indigenous plants and keep up common networks, alongside their perplexing system of connections. Furthermore, in situ conservation builds the measure of decent variety that can be conserved, and fortifies the connection between asset conservation and practical use. In situ conservation endeavors worldwide have concentrated on setting up ensured territories and adopting a strategy that is ecosystem-

arranged, as opposed to species-situated. Fruitful in situ conservation relies upon principles, guidelines, and potential consistence of medicinal plants inside development environments.

Characteristic holds The debasement and obliteration of living spaces is a noteworthy reason for the loss of medicinal plant assets. Regular stores are ensured territories of critical wild assets made to save and reestablish biodiversity. Around the globe, in excess of 12,700 secured zones have been set up, accounting for 13.2 million km², or 8.81 % of the Earth's territory surface. Saving medicinal plants by ensuring key characteristic territories requires evaluating the commitments and ecosystem elements of individual natural surroundings.

Wild nurseries It is difficult to assign each common wild plant living space as an ensured zone, inferable from cost contemplations and contending land employments. A wild nursery is built up for species-situated developing and training of imperiled medicinal plants in an ensured zone, common living space, or a spot that is just a short separation from where the plants normally develop. In spite of the fact that the populations of numerous wild species are under overwhelming weight due to overexploitation, territory corruption and intrusive species, wild nurseries can give a viable way to deal with in situ conservation of medicinal plants that are endemic, jeopardized, and sought after.

CONCLUSION

Later and reestablished enthusiasm for medicinal plants coupled to advancements in data innovation has fuelled a blast in the range and substance of electronic data concerning medicinal plants as a renew health help. as of late explored various wellsprings of such data in customary abstracting administrations just as in an assortment of online electronic databases. As a result of such improvements, access to indigenous people groups and cultures concerning medicinal plants are significantly encouraged. Besides, the dynamic support of such characteristic overseers and specialists of important learning is ensured in the age of research concentrating on screening software engineers managing the disconnection of bioactive standards and the advancement of new drug. Notwithstanding the presence of different arrangements of suggestions for the conservation and feasible utilization of medicinal plants, just a little segment of these have accomplished sufficient assurance of medicinal plant assets through regular conservation in common saves or botanic gardens.

As our way of life is presently getting techno-sharp, we are moving far from nature. While we can't escape from nature since we are a piece of nature. As herbs are common items they are free from

symptoms, they are similarly protected, eco-accommodating and locally accessible. Generally there are parcel of herbs utilized for the infirmities identified with various seasons. There is a need to elevate them to spare the human lives.

These herbal items are today are the image of wellbeing as opposed to the manufactured drugs, that are viewed as dangerous to human being and condition. In spite of the fact that herbs had been evaluated for their medicinal, enhancing and sweet-smelling characteristics for quite a long time, the engineered results of the cutting edge age outperformed their significance, for some time. Be that as it may, the visually impaired reliance on synthetics is finished and individuals are coming back to the naturals with any desire for wellbeing and security. It's an ideal opportunity to advance them all inclusive.

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