Lec.1

Medicinal plant

Dr. Sundus Hameed Ahmed
Dr. Hebba Al-Lami

2025-2026

Medicinal Plant

A considerable number of defi nitions have been proposed for the term

‘medicinal plant’. According to the World Health Organization, “a

medicinal plant is any plant which, in one or more of its organs, contains

substances that can be used for therapeutic purposes, or which are

precursors for chemopharmaceutical semi synthesis”.

- This defi nition distinguishes between the already known medicinal
- plants whose therapeutic properties or characters are precursors of certain
- molecules which have been established scientifi cally,
- with that of other
- plants used in traditional medicine which are regarded as medicinal, but
- have not yet been subjected to a thorough scientifi c study.

- **Medicinal plants are a signifi cant source of synthetic and herbal drugs.**
- **Patterns of herbal utilization are depicted in Fig. 1.1 Medicinal plants have**
- **of herbal drugs. been used for the treatment of diseases since antiquity., 20,000 plant species are used for medicinal purposes.**
- **India and China have been on the forefront when one refers to the history**

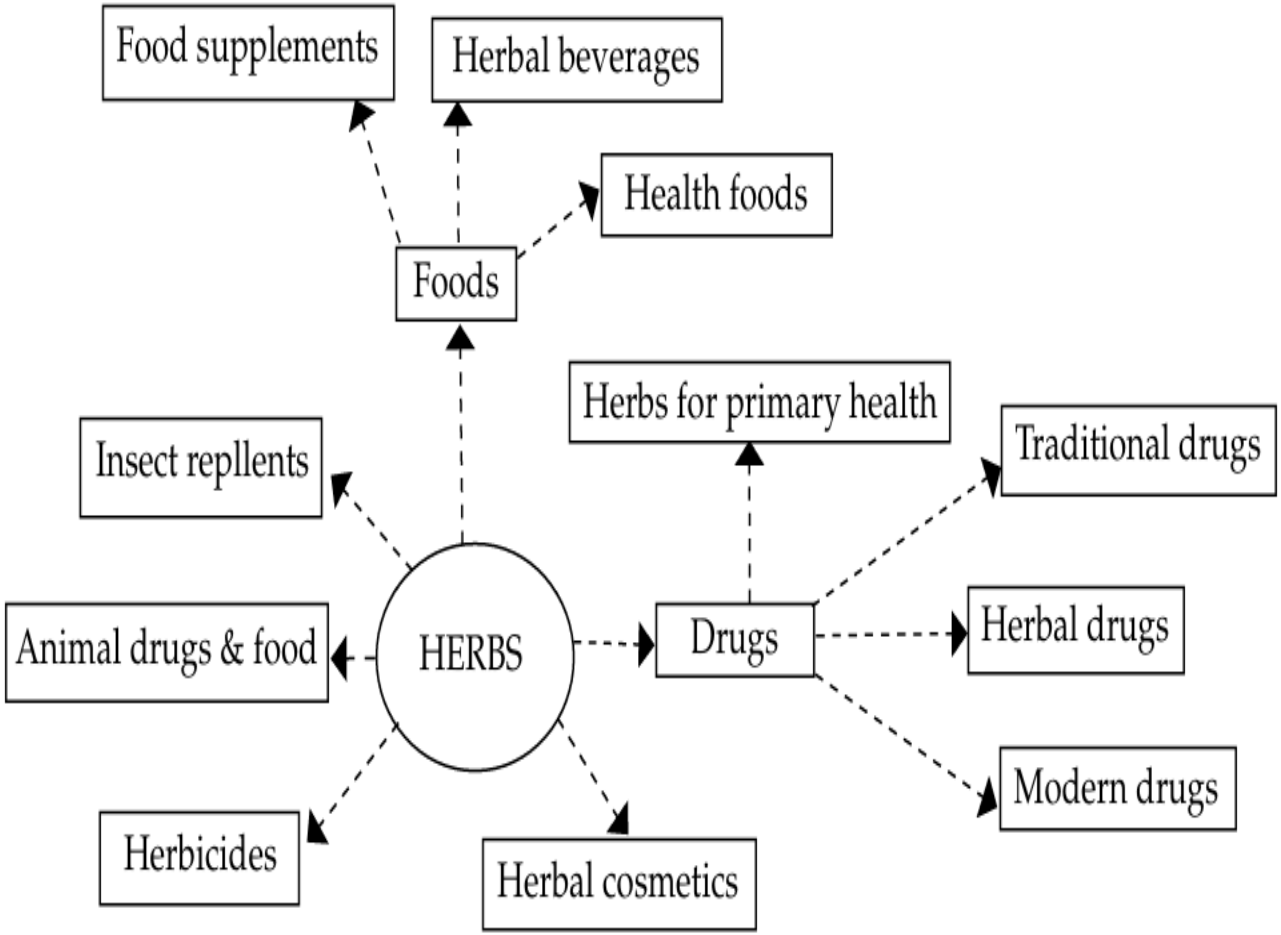

Fig. 1.1 Patterns of herbal utilization.
Source: Riewpaiboon (2003).

- Before the availability of synthetic drugs, man was completely dependent on medicinal herbs for prevention and treatment of diseases.
- The use of the medicinal herbs for curing diseases has been documented in the history of all civilizations. The drugs were used in crude forms like expressed juice, powder, decoction or infusion..

. Preparation of medicinal plants

Medicinal plants are usually tough and fibrous, requiring some preparation to make them more convenient to administer. According to Institute for Traditional Medicine, popular methods for the preparation of herbal medicines are powdering, extraction with alcohol, and decoction, in each case yielding mixture of substances. Powdering involves drying of the plant materials followed by crushing it to yield powder which can be compressed to form tablets. Decoction

o,

- involves crushing followed by boiling the plant materials in water to produce liquid extract. The
- extraction with alcohol involves soaking of the plant material in distilled spirit or cold wine to
- form a tincture
- Traditional poultices were prepared by boiling medicinal plants and wrapping them in a cloth,
- and then externally applying the resulting parcel to the affected parts of the body

- When modern medicine identifies a drug in medicinal plant, commercial quantities of the drug
- can either be extracted from plant material or synthesized, yielding a pure medicinal chemical.
- Extraction may be practical when the chemical compound in question is complex

Uses of medicinal plants

- Plant medicines are extensively used worldwide. In most of the developing countries, especially
- in the rural areas, local traditional medicines, such as herbalism, are the major source of health
- care for the people, while in the developed countries, alternative medicines including the use of
- dietary supplements are marketed aggressively with the claims of traditional medicine. As at

, most products produced from medicinal plants have not been tested for their efficacy and safety, and products marketed in developed nations and provided in the undeveloped countries

by the traditional healers were not of even quality, sometimes containing dangerous contaminants (Chan, 2015).

- **Drugs derived from plants including cannabis, opiates, and cocaine have both recreational and**
- **evidence for approximately half of the medicines; there was only phytochemicals evidence for**
- **about 20%; 0.5% were toxic or allergenic; and about 12% had basically not been studied**
- **scientifically.**

- **The WHO has set out strategies for traditional medicines with four main objectives:**
- **a) to increase their affordability and availability;**
- **b) to integrate them as part of the policies into national healthcare systems;**
- **c) to promote their rational and therapeutically sound usage; and**
- **d) to provide guidance and knowledge on their safety, quality, and efficacy (World Health Organization, 2013).**

Safety concerns of medicinal plants

Plant medicines can raise safety concerns and cause adverse effects and even death in extreme cases, whether by the side-effects of their active compounds (substances), by overdose, by inappropriate prescription, or by adulteration (or contamination). Many such effects are well known, while several others remain to be scientifically explored.

The Thornapple

Datura stramonium is used for asthma remedy, because of its content of the alkaloid atropine, but it is as

well a powerful and potential fatal hallucinogen. There is no reason whatsoever to presume that as a product comes from nature it is safe: the existence of powerful natural poisons such as nicotine and atropine indicates this to be incorrect. Further, the high standards and quality applied to the conventional medicines do not often apply to the plant medicines, and dose often vary extensively depending on the growth conditions of the plants : for instance, older plants may be far more toxic than young plants,

and also plants grown on

toxic and contaminated environments

usually contain more toxic substances than the plants grown in organic and agricultural safe environment.

The extracts of pharmacologically active plants can interact with the conventional drugs, both

because they can provide increased dose of related compounds,

and because some

phytochemicals delay and interfere with the body systems that metabolize drugs in the liver

.

Where medicinal plants are rather harvested from the wild than being cultivated,

they are subject

to both specific and general threats.

A specific threat is excess collection to meet the rising

demand for medicines.

General threats are climate change, global warming