



The Importance of Plants as a Source of New Drugs

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All across the globe, herbal medicine is extensively employed. People have been using natural treatments to treat common problems like colds, allergies, upset stomachs, and toothaches for generations, and the trend is only growing. As a result, there has been a movement in the global trend from synthetic to herbal medications, which we might call a “Return to Nature” for illness and sickness prevention. Medicinal plants can be found in nature. According to the World Health Organization (WHO), herbal medicines are used by 4 billion people (or 80% of the world’s population) for some part of primary healthcare. Herbal medicine has been acknowledged by the World Health Organization as an important component of basic health care, with plants accounting for around 11 percent of the 252 medicines available. Plants have been utilised as food, medicine, clothing, and shelter by human civilization from the dawn of time. Plants have several pharmacological roles, including antioxidant, antiviral, anticancer, antimicrobial, antifungal, and anti-parasitic. Vegetarian foods contain high amounts of various “super nutrients,” such as protective antioxidants, phytochemicals, and micronutrients, which promote health and protect against diseases. Free radical scavenging compounds found in plants, such as flavonoids, phenolic acids, anthocyanins, and vitamins, have antioxidant properties. It has been suggested that phytochemicals’ antioxidant properties can help to reduce oxidative stress in biological systems. Many human illnesses, including as cardiovascular disease, hepatic-renal disease, diabetes, cancer, and neurodegenerative disorders, have been decreased by phytochemicals. Several herbal medications, on the other hand, are generated directly or indirectly from plants that are now being used to treat a variety of human ailments.

Nature, the creator of molecules, has produced an almost limitless number of molecular entities. It is an endless supply of drug development, novel chemo types and pharmacophores, and scaffolding for amplification into effective medications for a variety of illness indications and other important bioactive substances. Natural goods have formed the backbone of traditional treatment systems across the world since the dawn of time, and they have also played an important role in history and culture. Although bioactive natural products have been used as herbal medicine preparations for hundreds, if not thousands, of years, their utilisation as isolated and described chemicals in contemporary drug discovery and development did not begin until the nineteenth century. Natural products have long been recognised as important components in the production of contemporary drugs, particularly antibacterial and anticancer medicines.

Despite the fact that synthetic products’ popularity grew due to their low cost of production, ease of quality control, stringent regulation, and quick effects, their safety and efficacy were always questioned, resulting in a reliance on natural products by more than 80% of the total population in the developing world due to their time-tested safety and efficacy. Natural product-derived drugs at various phases of clinical development have demonstrated the potential and importance of using natural products as sources of novel therapeutic candidates.

Natural products will continue to play an essential role in the development of therapeutic treatments. Many natural compounds can serve as chemical models or templates for the design, synthesis, and semi-synthesis of new molecules for treating human illnesses, in addition to those that have found direct therapeutic application as drug entities. However there are some novel techniques to drug discovery, such as combinatorial chemistry and computer-based molecular modelling design, synthetic chemistry is still used to make many medications. But none of them can fully replace natural products in medication exploration and development because most chemically synthesised compounds’ fundamental structures are derived from natural goods.

Natural products found thus far have played an important role in improving human health and, despite stiff competition from chemicals developed from computational and synthetic chemistry, have been the therapeutics of choice due to their safety and efficacy. Natural products’ structural diversity, which is still completely unexplored, is the most remarkable trait in relation to their long-term value in drug development. Natural product revitalization is posing new problems in terms of quality control and regulation, as well as cost effectiveness. The revitalized interest in natural product development entails the integration of current techniques and the alignment of legislation governing their study and development across diverse sectors of science.