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A Review article on MODERN CONCEPT OF PHARMACOGNOSY

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Abstract: The review article comprises of the various aspects of modern concept of pharmacognosy. Modern pharmacognosy is a highly specialized science dealing with biological, biochemical and medicinal properties of plant, natural raw material and its product and has wide range of pharmacological activities including antioxidant, antilipids, peroxidant, immunomodulator, cardiotonic and hypertensive, wound healing, antidegenerative and antidiabetic activities. The conventional medical practices adopted for identification and authentication of natural remedies framed the botanic-chemical approach to pharmcognosy during the early 19th century. The systematic study of natural medicines in terms of purity, potency, consistency and safety have become the major issues in Pharmacognosy. Clinical Pharmacognosy, Analytical Pharmacognosy and Industrial Pharmacognosy have been established as the specialized and professional off shoots of Pharmacognosy to meet the recent advancements in the field of Pharmacognosy. The Molecular Pharmacognosy, Genomic and Metabolomic Pharmacognosy have been deemed as the promising approaches of Pharmacognosy research to accommodate future demands in molecular biology, biotechnology and analytical chemistry of natural medicinal plants.

Keywords: Modern pharmacognosy, purity, potency, molecular, cardiotonic, hypertensive.

1. INTRODUCTION:

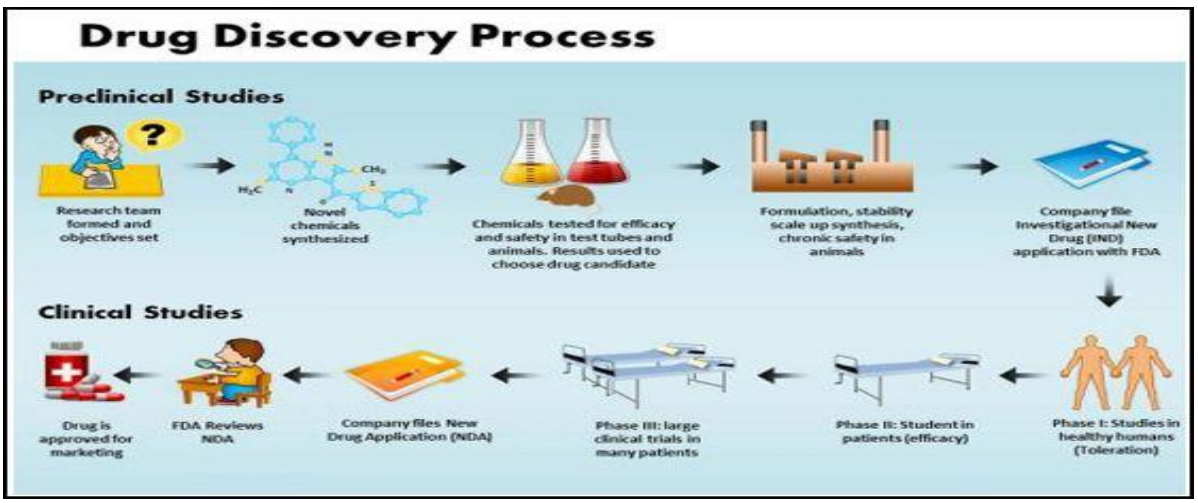
Modern pharmacognosy is a highly specialized science dealing with biological, biochemical and medicinal properties of plant, natural raw material and its product. The subject of study in pharmacognosy is melting point, MRM of raw material and animal origin has always been a translational or interdisciplinary science and as the breadth of this subject area has expanded, phytochemistry and phytochemical analysis have become essential components. The origin of Pharmacognosy is entirely based on the traditional medicinal practices and the credit for coinin the term 'Pharmacognosy' solely goes to the European world. In fact, the traditional medical information compiled by various European scholars in the form of Materia Medica and other medical texts was further organized in the form of Pharmacognosy to incorporate identification, authentication, production, processing, potency, purity, safety and other aspects of traditional medicinal plant.

Pharmacognosy, derived from the Greek words “pharmakon” (drug) and “gnosis” (knowledge), is the oldest modern science and study of crude drugs of plant and animal origin (in the form of tinctures, teas, poultices, powders, and other herbal formulations and it incorporates authentication and quality control of such drugs, based on macroscopic and microscopic examinations of crude drugs. Pharmacognosy, like every scientific field has also evolved over the years. Pharmacognosy defined as that of the science of biogenic or naturally sourced drugs, pharmaceuticals and poisons as well as various modern analysis tools to authenticate and quality control crude drugs, purified active extracts, fractions, and components, or even medicinal foods. Pharmacognosy has progressed from the extraction, characterization and evaluation of bioactivity of active chemicals in medication research to crude medicine manufacture. The American Society of Pharmacognosy defines pharmacognosy as “the study of the physical, chemical, biochemical, and biological features of medications, drug substances, or prospective pharmaceuticals or drug substances of natural origin, as well as the quest for innovative drugs from natural sources.” Pharmacognosy some 200 years ago, it has evolved over the years, and now Pharmacognosy can be defined as the science of biogenic or naturally derived drugs, pharmaceuticals and poisons and it incorporates various modern analytical techniques to authenticate and quality control of crude drugs as well as purified active extracts, fractions, components and even medicinal foods. The modern study of natural substances produced from plants, bacteria, fungi, and marine animals is pharmacognosy.

Modern pharmacognosy also encapsulates these relevant new areas into a distinct interdisciplinary science. The emphasis and focus of study in pharmacognosy have shifted dramatically from drug identification, such as the isolation of active constituents and more recently, biological activity investigation. Ethnobotany, ethnomedicine, and ethnopharmacology research have become key pharmacognosy components. So, we can say that Pharmacognosy is the study of crude remedies of plant and animal origin and their authentication and quality control based on macroscopic and microscopic examination of raw drugs.

In modern pharmacy, about 50% of drug and drug substance are derived from natural products. Most of the new drug discovery projects adopt traditional medicine-based strategies to increase success and assure the safety of new drugs. Thus, a variety of historical evidence reflects the existence of the huge pool of ancient knowledge of natural medicinal substances that affected the different traditional medication systems in the different parts of the world. There is no doubt that traditional medicines truly protected human society since antiquity and are still supporting society in medication, research and development. Several historical indications have shown that Pharmacognosy was evolved from early scientific studies on medicinal herbs and it includes botanical and phytochemical aspects of medicinal substances. A large proportion of the world population has already adopted 'back to the nature' strategy to maintain a healthier life and still there is an increasing trend of using natural medicine based in complementary and alternative therapies in developed as well as developing countries. It is estimated that about 300,000 plant species are found worldwide.

Modern pharmacognosy also connecting biology and chemistry. Pharmacognosy has strategic position to connect biology and chemistry. This subject is important for discovery of novel and unique molecules with drug potential and for reveling unknown target by studying evolutionary structure activity optimization in nature. Natural products are involved in scientific issues important for a sustainable society and a multidisciplinary subject such as pharmacognosy can be useful in increasing future interest in both chemistry and biology. Drug use as use from medicinal plants has advanced from the formulation of crude drugs to the isolation, identification and assessment of bioactivity of active compounds in drug discovery and through perseverance and the provision of effective vetting assays directed toward physiologically relevant molecular targets, molecular biology is becoming essential to medicinal plant drug discovery.



DRUG DISCOVERY PROCESS

2. SIGNIFICANCE OF PHARMACOGNOSY:

Pharmacognosy was acknowledged as an important component of drug discovery processes and pharmacy education. The introduction of new wonder medications manufactured in the laboratory has resulted in a fall in its usage. Many scientists have recently recognized that indigenous knowledge about the therapeutic properties of several plants should never be lost since it provides valuable insight into the creation of new medications. Artemisinin, for example, is an old Chinese drug used for malaria treatment derived from the Artemisia annua tree.

Phytotherapy and phytopharmaceuticals represent the reverence for traditional knowledge. Plant products are widely used to cure ailments in South American countries, China, and India, wherein billions are invested in pharmacognosy research to develop and commercialize natural therapeutic medications. Other nations should investigate the use of medicinal plants in combating currently incurable and/or life-threatening illnesses such as Alzheimer's, HIV, chronic pain, and malaria. Several natural medicines are now being studied in clinical studies.

Role of pharmacognosy in system of profile discipline in Pharmacy:

Pharmaceutical disciplines are divided into three basic categories pharmaceutical chemistry, pharmaceutical biology and social pharmacy. Pharmaceutical chemistry disciplines include isolation of photochemistry (optimal procedure for obtaining active substance), analytical phytochemistry (quantitative and qualitative analytical chemistry of natural compounds), preparative organic chemistry (preparation of derivative and structure modification of isolated compounds), structure analysis methods. Pharmaceutical biology disciplines include biological disciplines, pharmacognosy (Basic verification methods, macroscopy, microscopy), Pharmacobotony (Ethnobotany, physiology andsecondary metabolites), Genetics (Creation of chemical verities by gene recombination for field production. Biotechnology (Microbiology, production of substance by various cell types in vitro, usage of recombinant DNA technologies, enzymes fixed to carrier), pharmacology and toxicology of natural substance (Basic characteristics of biological effect, primary toxicology of newly isolated compounds, detection of undesirable impurities). Technical disciplines include computer methods (chemical docking), categories and classification of natural raw materials. All these disciplines create the whole of pharmacognosy.

3. CONCLUSION:

Pharmacognosy refers to the science of isolating medicinal elements from components available in nature. Due to the development of modern medicine, this science declined with time. However, greater importance is being given to developing natural medicine these days. Pharmacognosy is a growing field that will make headway shortly as the focus on natural medicine continues to grow.

Pharmacognosy is modern science of natural medicines, is based on traditional medicines used in different parts of the world. Traditional medical heritages of Ayurveda, Traditional Chinese medicine, Greco-European medicine, Egyptian medicine, Kampo medicine and others are important precursors for the development of Pharmacognosy and pharma science. The Modern pharmacognosy encapsulates new areas into a distinct interdisciplinary science. The emphasis

and focus of study in pharmacognosy have shifted dramatically from drug identification, such as the isolation of active constituents and more recently, biological activity investigation. Ethnobotany, ethnomedicine, and ethnopharmacology research have become key pharmacognosy components.

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