



A brief note on molecular pharmacognosy

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DESCRIPTION

Molecular pharmacognosy has the following three theoretical bases: First, the development of molecular biology has brought all branches of biology to the molecular level. Pharmacognosy focuses mainly on plant and animal medicine, touching on many biological theories and methods, so this is no exception. Second, raw drugs are of major origin in animals and plants; their cells contain DNA, which is the basis for storing, duplicating, and transmitting genetic information. DNA is also the material base of molecular biology, so pharmacognosy contains the mixed material bases of DNA and molecular biology. This led to the application of molecular biology theoretically and methodologically to pharmacognosy. The study of animal and plant raw drugs in pharmacognosy has evolved from population, organism, tissue, organ and cell levels to the genetic level. Third, the structure and development of molecular pharmacognosy has been inspired by a number of disciplines, including genetics, molecular systematics, molecular ecology, conservation biology, biochemistry, and medicinal plant breeding, which are mainly postgraduate at the nucleic Acids and proteins level. Therefore, the progress and modernization of pharmacognosy is closely related to molecular biology; this inevitably promoted the study of pharmacognosy to reach the molecular level.

The discovery of DNA structure in 1953 marked a milestone in the history of biology and led to modern molecular biology, which is increasingly concerned with understanding how genes regulate chemical processes in cells. DNA, which contains genetic instructions, combines molecular biology and pharmacognosy. The new frontier discipline - Molecular Pharmacognosy,

a term coined in 1995 is being formed on the border between pharmacognosy and molecular biology. Using the methods and techniques of Molecular Biology, Molecular Pharmacognosy focuses on solving a wide range of challenging problems. Molecular markers have been used to identify species, cultivars and area of production and have become a powerful weapon for identifying adulteration and substitution. The candidate for cloning the active compound can be cloned to describe the process by which the genes are formed. Cultivation improvements and new raw drugs can be achieved through genetic engineering. Conservation and utilization of forest resources is based on knowledge of genetic diversity. Recent research has shown that molecular pharmacognosy expands the scope of pharmacognostic science and plays an important role in the safety and effective use of raw drugs.

Molecular pharmacognosy studies the classification, identification, cultivation and protection of raw drugs, as well as the production of effective components at the molecular level. Based on the theories and methods of pharmacognosy and molecular biology, molecular pharmacognosy is a good and prospective interdisciplinary approach to pharmacognosy. Molecular pharmacognosy presents traditional topics and the missions of pharmacognosy with new applications and challenges. The sources of raw medicines are mainly plants and animals, although there are some minerals that can be considered as raw medicines. The study materials of molecular pharmacognosy are limited to the floral and animal origins of raw drugs. Molecular pharmacognosy can be divided into six main biological levels: genome, cell, organ, organism, population, and community, depending on the different organism levels and the gradual combination. This biological mode,

based on multiple levels, is called the biological spectrum. Each particular level in the biological spectrum is discovered by a historical process. In general, the development of organism levels in the micro and macro directions has led to the systematic discovery of all levels related to the discovery of cells and genes. Studies of specific scientific questions at each level have led to independent branches in the field of life sciences. Branches such as Molecular Biology and Cytobiology are mutually reinforcing but not substitutes for each other. Currently, pharmacognosy research focuses on tissue, organ, organism, and population levels, using advanced and independent theories and methods including pharmacognosy histology and morphology. Molecular pharmacognosy is a branch of molecular biology that deals with raw pharmaceuticals on a genetic level. Its theories and methodologies are based on molecular biology.

CONCLUSION

Molecular pharmacognosy has developed rapidly in recent years and has made great strides in cultivation identification, resource conservation, quality building processes, and active compound production. Great advances in molecular pharmacognosy can be predicted on quality construction methods, cultivation improvement and DNA.