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Role of natural products in modern health care system

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Natural products are extracted from tissues of terrestrial plants, marine organisms or microorganism fermentation broths. A crude extract from any one of these sources typically contains novel, structurally diverse chemical compounds with biological activity and that compound is known as active principle. Natural products have inspired many developments in organic chemistry leading to advances in synthetic methodologies and to the possibility of making analogues of the original lead compound. These lead compounds are useful drugs and used as starting templates in the synthesis of combinatorial libraries. Over 100 new products are in clinical development and continue to be the major source of drug discovery. Natural product libraries are good alternative to synthetic libraries. Most of the drugs derived from microorganisms are used in antibacterial therapy and some microbial metabolites have provided lead compounds like asperlicin, lovastatin, cyclosporine etc., in fields of medicine. Marine microorganisms have biologically potent chemicals like curacin A, eleutherobin, with interesting inflammatory, antiviral and anticancer activity. Various screening approaches are being developed to improve the natural products use in drug discovery campaigns, and data mining and virtual screening techniques are also being applied to databases of natural products. Most of the drugs like reserpine, digoxin, caffeine, atropine, codeine, morphine are obtained as phytochemicals from natural products. Gum, gum resins, oleoresin, alkaloids, phenolic compounds, flavonoids, glycosides, and other plant derived secondary metabolites possessing high therapeutic efficacy and to be treated for so many existing ailments and also a vital tool for novel drug delivery systems and gene therapy. Hence the usage of natural products is unavoidable in the modern translational recombinant era of health care system.

Biography

D Gnanasekaran is working as Professor and Department Head of Pharmacology at Bharathi College of Pharmacy, Bharathinagar, Karnataka, India. He is a Pharmacist, Researcher and Academician and he has guided 15 Master's degree students and supervising 4 PhD scholars in the advanced research areas of Pharmacology. He has developed novel herbal formulations for the ailments of piles, fistula and fissures, obesity, high blood pressure, viral hepatitis, type I diabetes mellitus and psoriasis without any side effects and promising efficacy. His research interests include: herbal medicines, molecular pharmacology, sexually transmitted diseases, neurodegenerative diseases and liver diseases.

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