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RESEARCH ARTICLE

NATURAL PRODUCTS: THE ROLE IN DRUG DISCOVERY

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Abstract

Natural products have been used since ancient times and in myth for the treatment of numerous conditions and ails. Natural products and their derivations have been honored for numerous times as a source of remedial agents and of structural diversity. still, natural products are n't medicines. They're products of nature and through natural assays they're linked as leads which come campaigners for medicine development. further than 50 of the medicines that are in the request decide from natural resource. still, in addition to their chemical structure diversity and their biodiversity, the development of new technologies has revolutionized the webbing of natural products in discovering new medicines. Applying these technologies compensates for the essential limitations of natural products and offers a unique occasion tore-establish natural products as a major source for medicine discovery. The present composition attempts to describe the application of composites deduced from natural coffers as medicine campaigners, with a focus on the success of these coffers in the process of chancing and discovering new and effective medicine composites.

Introduction:-

Products, including shops, creatures and minerals have been the base of treatment of mortal conditions [1,2]. nonetheless, ancient wisdom has been the base of ultramodern drug and will remain as one important source of unborn drug and rectifiers. Historically, the maturity of new medicines have been generated from natural products and from composites deduced from natural products. Before 20th century, crude andsemi-pure excerpts of shops, creatures, microbes and minerals represented the only specifics available to treat mortal and domestic beast ails. The 20thcentury revolutionized the thinking in the use of medicines, as the receptor proposition of medicine action. The idea that effect of medicine in mortal body are intermediated by specific relations of the medicine patch with natural macromolecules led scientist to the conclusion that individual chemical composites in excerpts, rather than some mystical " power of life " are the factors needed for the natural exertion of the medicine. This lead to the morning of a completely new period in pharmacology, as pure, isolated chemicals, rather of excerpts, came the standard treatments for conditions. Indeed, numerous bioactive com pounds, responsible for the goods of crude excerpt medicines, and their chemical structure was illustrated. Classical exemplifications of medicine composites discovered this way are morphine, the active agent in Opium, and digoxin, a heart goad forming from flower Digitalislanata.

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The evolution in synthetic chemistry also led to chemical synthesis of many of the elucidated structures. On the other hand, the pharmaceutical sector is focused on development of new drugs, innovative/indigenous processes for known drugs and development of plantbased drugs through investigation of leads from the traditional systems of medicine [2]. The exploitation of structural chemical databases consisting of a wide variety of chemotypes, in conjunction with databases on target genes and proteins, will surely facilitate the creation of new chemical entities through computational molecular modeling for pharmacological evaluation [3].

The present paper discusses and examines how natural products have produced successful results for the pharmaceutical industry for drug discovery and development, and why nature still remains as important source of new drug compounds until today. It's also offers a broad overview of the newest techniques being used in pharmaceutical research today for drug discovery.

Nature as Source of New Drug Compounds

Natural products have played a key role in pharma research, as many medicines are either natural products or derivatives thereof. Indeed, it is estimated that about 60% of all medicines is either natural products or their semi-synthetic derivatives [4]. Clinical, pharmacological, and chemical studies of these traditional medicines, which were derived predominantly from plants, were the basis of most early medicines such as aspirin, digitoxin, morphine, quinine, and pilocarpine [5]. Despite competition from other drug discovery methods, natural products are still providing their fair share of new clinical candidates and drugs. These compounds were still a significant source of new drugs, especially in the antiviral [6]anticancer [7], anti-oxidants [8],antimicrobial [9],antihypertensive [10], anti-infectives, immune suppression, and neurologicaldisease therapeutic areas, and some of them have since progressed further into clinical trials or onto the market .Natural products research continues to explore a variety of lead structures, which may be used as templates for the development of new drugs by the pharmaceutical industry. These approved substances, representative of very wide chemical diversity, continue to demonstrate the importance of compounds from natural sources in modern drug discovery efforts [11].

In addition, natural products, containing inherently largescale structural diversity than synthetic compounds, have been the major resources of bioactive agents and will continually play as protagonists for discovering new drugs [12].

The Success of Natural Products The success of natural products is related to the forces of natural products chemistry, molecular and cellular biology, synthetic and logical chemistry, biochemistry, and pharmacology to exploit the vast diversity of chemical structures and natural conditioning of these products. According to Lutz [13], natural products not only complement synthetic motes, they also parade medicine applicable features inimitable by any synthetic emulsion. One crucial point of natural products is their enormous structural and chemical diversity. In fact, about 40 of the chemical pulpits set up in natural products are absent in moment's medicinal chemistry, and thus reciprocal to synthetically produced motes. utmost conceivably this is one of the reasons for their literal success in medicine discovery, with 45 of moment's bestselling medicines forming from natural products or their derivations. Another important advantage of natural products is that they've a natural history. also, the disquisition of structural chemical data bases comprising a wide variety of chemotypes, in confluence with databases on target genes and proteins, will grease the creation of new chemical realities through computational molecular modeling for pharmacological evaluation [14]. medicine discovery from shops and traditional drugs in India. The revivification trouble for medicine discovery process from natural products has been accepted by the Council of Scientific and Industrial Research CSIR), Govt. of India. Number of medicines has been deduced from factory grounded bioactive ingredients(Table- 1).

Table 1:- Natural products from Indian medicinal plants and their biological activity.

Marketed/traditional formulation	**Biological activity**		**Plant/Herbal formulation**	**Chemical Constituents**
Cystone®	Diuretic		Achyranthes aspera	Achyranthine
Himcolin	Antiinflammatory		Vitex negundo	Flavonoids
Liv 52®	Hepatoprotective		Boerrhaviadiffusa	Boeravinones
Himpyrin®	Antibacterial, antipyretic		Cyperus rotundus	Monoterpenes, Sesquiterpenes

Spermon®	Fertility enhancer		Asparagus adscendens	Asparanin A, Asparanin B, Sarasapogenin
Geriforte	Galactogogue, tonic		Asparagus racemosus	Shatavarin
Kofostal®syrup, Curill®capsules	Respiratory diseases, immunomodulatory		Ocimumsanctum	Monoterpenes, sesquiterpenes
Kofex®	Antiulcer, anti-tussive		Glycyrrhiza glabra	Glycrrhizin
Fizzle®, Vasa forte®	Bronchodilator		Tylophora indica	Tylophorine
Triphala	Bowel cleanser, general tonic		Triphala	Polyphenolics,Tannins
Kutajarista	Antiamoebic		Holarrhenaantidysentrica	Conessine
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Ayuslim®	Anti-diabetic,lipid lowering		Trigonella foenumgraecum	Trigonellin
Ashwagandharista	Mmunomodulatory		Withaniasomnifera I	Withanolides
Pipalayadiyoga	Anti-fertility		Embeliaribes	Embelia
Diabecon®	Anti-diabetic		Pterocarpus marsupium	Liquiritigenin, isoliquiritigenin
Chyavanprasha	Antioxidant		Phyllanthus emblica	Polyphenolics ,Tannins
Pigmento®	Vitiligo		Psoralea corylifolia	Psoralen
Diakof®, Koflet®	Bronchodilator		Adhatodavasica	Vasicine, vasicinone
Thank God®	Piles		Euphorbia prostrata	Flavonoids
Kayamchurna®	Constipation		Cassia spp.	Sennosides
Mentat®, Himalaya Brahmi®	Memory enhancer		Bacopa monnieri	Baccosides

Conclusion:-

The medicinal shops have contributed a great deal to the academic curiosity as it's apparent from the number of publications, but couldnt give advance motes similar as paclitaxel and artemisinin for medicine discovery. The credits for the leads like reserpine and forskolin before attained from the shops of traditional Indian system of drug had been taken by the western medicinal companies. Still indigenous systems of drugs have a great compass for the discovery of leads for several complaint classes by the virtue of the chemical and natural diversity. The eventuality of chancing new bioactive composites that act synergistically with less active motes is much advanced from traditional drugs. These chemicals can unleash new chemistry and biology to discover new medicines. thus, the development of traditional drugs has to be done by keeping in view the targeted remedial area. The stylish suited areas for traditional drugs can be metabolic and some seditious conditions. There's also a need to develop and screen a large number of pure emulsion and factory excerpt libraries to make the most out of what's available. Besides this approach,semi-synthetic variations can also be tried for the being successes to get better lead composites from the natural products. These approaches can surely be a driving force for the medicine discovery from medicinal shops and lead to fruitful results for humanity.

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