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ROLE OF BIOLOGICAL NATURE OF ORGANIC COMPOUNDS WITH THERE STUDY OF BIOCHEMICAL NATURE OR THERE ORIGIN

***Sandeep Kumar, ** Dr. Akhilesh Kumar**
**PhD Scholar DEPARTMENT OF LIFE SCIENCS*
MONAD UNIVERSITY, Hapur (UP),
***Assistant Professor, Govt. PG College Narnaul (HR).*

INTRODUCTION

In retrospect, the definition of chemistry has changed over time, as new discoveries and theories add to the functionality of the science. The term "chymistry", in the view of noted scientist Robert Boyle in 1661, meant the subject of the material principles of mixed bodies. In 1663, "chymistry" meant a scientific art, by which one learns to dissolve bodies, and draw from them the different substances on their composition, and how to unite them again, and exalt them to a higher perfection - this definition was used by chemist Christopher Glaser.

The 1730 definition of the word "chemistry", as used by Georg Ernst Stahl, meant the art of resolving mixed, compound, or aggregate bodies into their principles; and of composing such bodies from those principles. In 1837, Jean-Baptiste Dumas considered the word "chemistry" to refer to the science concerned with the laws and effects of molecular forces. This definition further evolved until, in 1947, it came to mean the science of substances: their structure, their properties, and the reactions that change them into other substances - a characterization accepted by Linus Pauling. More recently, in 1998, the definition of "chemistry" was broadened to mean the study of matter and the changes it undergoes, as phrased by Professor Raymond Chang.

Biophysics is an interdisciplinary science using methods of, and theories from, physics to study biological systems. Biophysics spans all levels of biological organization, from the molecular scale to whole organisms and ecosystems. Biophysical research shares significant overlap with biochemistry, nanotechnology, bioengineering, agrophysics and systems biology. It has been suggested as a bridge between biology and physics in biochemistry and molecular biology, but more quantitatively. Scientists in this field conduct research concerned with understanding the interactions between the various systems of a cell, including the interactions between DNA, RNA and protein biosynthesis, as well as how these interactions are regulated. A great variety of techniques is used to answer these questions.
Fluorescent imaging techniques, as well as electron microscopy, x-ray crystallography, NMR spectroscopy and atomic force microscopy (AFM) are often used to visualize structures of biological significance. Conformational change in structure can be measured using techniques such as dual polarisation interferometry and circular dichroism. Direct manipulation of

molecular biophysics typically addresses biological questions similar to those in biochemistry and molecular biology, but more quantitatively. Scientists in this field conduct research concerned with understanding the interactions between the various systems of a cell, including the interactions between DNA, RNA and protein biosynthesis, as well as how these interactions are regulated. A great variety of techniques is used to answer these questions.

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Transfer some is a term registered as a trademark by the German company IDEA AG, used to refer to its proprietary drug delivery technology. The name means ―carrying body‖, and is derived from the Latin word 'transferre', meaning ‗to carry across', and the Greek word ‗soma', for a ‗body'. A *Transfersome* carrier is an artificial vesicle designed to be like acell vesicle or a cell engaged in exocytosis, and thus suitable for controlled and, potentially targeted, drug delivery.

DISCOVERY

The term *Transfersome* and the underlying concept were introduced in 1991 by Gregor Cevc. Numerous groups have since been working with similar carriers, frequently under different names (elastic vesicle, flexible vesicle, Ethosome, etc.) to describe them.

In a broader sense, a *Transfersome* is a highly adaptable and stress-responsive, complex aggregate. Its preferred form is an ultradeformable vesicle possessing an aqueous core surrounded by the complex lipid bilayer. Interdependency of local composition and shape of the bilayer makes the vesicle both self-regulating and self-optimizing. This enables the *Transfersome* to cross various transport barriers efficiently, and then act as a Drug carrier for non-invasive targeted drug delivery and sustained release of therapeutic agents. The carrier aggregate is composed of at least one amphiphat (such as phosphatidylcholine), which in aqueous solvents self-assembles into lipid bilayer that closes into a simple lipid vesicle. By addition of at least one bilayer softening component (such as a biocompatible surfactant or an amphiphile drug) lipid bilayer flexibility and permeability are greatly increased. The resulting, flexibility and permeability optimised, *Transfersome* vesicle can therefore adapt its shape to ambient easily and rapidly, by adjusting local concentration of each bilayer component to the local stress experienced by the bilayer. In its basic organization broadly similar to a liposome), the *Transfersome* thus differs from such more conventional vesicle primarily by its "softer", more deformable, and better adjustable artificial membrane.

Another beneficial consequence of strong bilayer deformability is the increased *Transfersome* affinity to bind and retain water. An ultradeformable and highly hydrophilic vesicle always seeks to avoid dehydration; this may involve a transport process related to but not identical with forward osmosis. For example, a *Transfersome* vesicle applied on an open biological surface, such as non-occluded skin, tends to penetrate its barrier and migrate into the water-rich deeper strata to secure its adequate hydration. Barrier penetration involves reversible bilayer deformation, but must not compromise unacceptably either the vesicle integrity or the barrier properties for the underlying hydration affinity and gradient to remain in place.

Since it is too large to diffuse through the skin, the *Transfersome* needs to find and enforce its own route through the organ. The *Transfersome* vesicles usage in drug delivery consequently relies on the carrier‗s ability to widen and overcome the hydrophilic pores in the skin or some other (eg plant cuticle) barrier. The subsequent, gradual agent release from the drug carrier allows the drug molecules to diffuse and finally bind to their target. Drug transport to an intra-cellular action site may also involve the carrier‘s lipid bilayer fusion with the cell membrane, unless the vesicle is taken-up actively by the cell in the process called endocytosis.

REVIEW OF LITERATURE

Ancient Egyptians pioneered the art of synthetic "wet" chemistry up to 4,000 years ago. By 1000 BC ancient civilizations were using technologies that formed the basis of the various branches of chemistry such as; extracting metal from their ores, making pottery and glazes, fermenting beer and wine, making pigments for cosmetics and painting, extracting chemicals from plants for medicine and perfume, making cheese, dying cloth, tanning leather, rendering fat into soap, making glass, and making alloys like bronze. The genesis of chemistry can be traced to the widely observed phenomenon of burning that led to metallurgy—the art and science of processing ores to get metals (e.g. metallurgy in ancient India). The greed for gold led to the discovery of the process for its purification, even though the underlying principles were not well understood—it was thought to be a transformation rather than purification. Many scholars in those days thought it reasonable to believe that there exist means for transforming cheaper (base) metals into gold. This gave way to alchemy and the search for the Philosopher's Stone which was believed to bring about such a transformation by mere touch.

History of metallurgy in the Indian subcontinent began during the 2nd millennium BCE and continued well into the British Raj. Metals and related concepts were mentioned in various early Vedic age texts. The Rigveda already uses the Sanskrit term Ayas (metal). The Indian cultural and commercial contacts with the Near East and the Greco-Roman world enabled an exchange of metallurgic sciences. With the advent of the Mughals, India’s Mughal Empire (established: april 21, 1526-ended: September 21, 1857) further improved the established tradition of metallurgy and metal working in India. The imperial policies of the British Raj led to stagnation of metallurgy in India as the British regulated mining and metallurgy—used in India previously by its rulers to build armies and resist England during various wars.

Recent excavations in Middle Ganga Valley done by archaeologist Rakesh Tewari show iron working in India may have begun as early as 1800 BCE. Archaeological sites in India, such as Malhar, Dadupur, Raja Nala Ka Tila and Lahuradewa in the state of Uttar Pradesh show iron implements in the period between 1800 BCE - 1200 BCE. Sahi (1979: 366) concluded that by the early 13th century BCE, iron smelting was definitely practiced on a bigger scale in India, suggesting that the date the technology's inception may well be placed as early as the 16th century BCE. The Black and Red Ware culture was another early Iron Age archaeological culture of the northern Indian subcontinent. It is dated to roughly the 12th – 9th centuries BCE, and associated with the post-Rigvedic Vedic civilization. It reached from the upper Gangetic plain in Uttar Pradesh to the eastern Vindhya range and West Bengal. Perhaps as early as 300 BCE, although certainly by 200 CE, high quality steel was being produced in southern India by what Europeans would later call the crucible technique. In this system, high-purity wrought iron, charcoal, and glass were mixed in crucibles and heated until the iron melted and absorbed the carbon. The resulting high-carbon steel, called *fūlāḏ* in Arabic and *wootz* by later Europeans, was exported throughout much of Asia and Europe.

The discovery of the chemical elements has a long history from the days of alchemy and culminating in the creation of the periodic table of the chemical elements by Dmitri Mendeleev (1834–1907) and later discoveries of some synthetic elements.

Jöns Jacob Berzelius, Joseph Priestley, Humphry Davy, Linus Pauling, Gilbert N. Lewis, Josiah Willard Gibbs, Robert Burns Woodward, and Fritz Haber also made notable contributions.

The year 2011 was declared by the United Nations as the International Year of Chemistry. It was an initiative of the International Union of Pure and Applied Chemistry and of the United Nations Educational, Scientific, and Cultural Organization and involves chemical societies, academics, and institutions worldwide and relied on individual initiatives to organize local and regional activities.

PRINCIPLES OF MODERN CHEMISTRY

The current model of atomic structure is the quantum mechanical model. Traditional chemistry starts with the study of elementary particles, atoms, molecules, substances, metals, crystals and other aggregates of matter. This matter can be studied in solid, liquid, or gas states, in isolation or in combination. The interactions, reactions and transformations that are studied in chemistry are usually the result of interactions between atoms, leading to rearrangements of the chemical bonds which hold atoms together. Such behaviors are studied in a chemistry laboratory.

The chemistry laboratory stereotypically uses various forms of laboratory glassware. However glassware is not central to chemistry and a great deal of experimental (as well as applied/industrial) chemistry is done without it.

A chemical reaction is a transformation of some substances into one or more different substances. The basis of such a chemical transformation is the rearrangement of electrons in the chemical bonds between atoms. It can be symbolically depicted through achemical equation, which usually involves atoms as subjects. The number of atoms on the left and the right in the equation for a chemical transformation is equal (when unequal, the transformation by definition is not chemical, but rather a nuclear reaction orradioactive decay). The type of chemical reactions a substance may undergo and the energy changes that may accompany it are constrained by certain basic rules, known as chemical laws.

Energy and entropy considerations are invariably important in almost all chemical studies. Chemical substances are classified in terms of their structure, phase, as well as theirchemical compositions. They can be analyzed using the tools of chemical analysis, e.g. spectroscopy and chromatography. Scientists engaged in chemical research are known aschemists.

MATERIAL AND METHOD

This Researchers in biochemistry will be concentrated on use specific techniques native to biochemistry, but increasingly combine these with techniques and ideas developed in the fields of genetics, molecular biology and biophysics. There has never been a hard-line between these disciplines in terms of content and technique. Today, the terms *molecular biology* and *biochemistry* are nearly interchangeable. Lipids consist of a broad group of compounds that are generally soluble in organic solvents butonly sparingly soluble in water. Lipids in food exhibit unique physical and chemical properties. Their composition, crystalline structure, melting properties and ability to associate with water and other non-lipid molecules are especially important to their functional properties in many foods. During the processing, storage and handling of foods, lipids undergo complex chemical changes and react with other food constituents, producing numerous compounds both desirable and deleterious to food quality. Cooking oil includes the well-known olive, sunflower, and canola oils and the not so well-known coconut, soy, and palm oils. Palm oil is similar to coconut. Because of its highly saturated, it is used to make shortening and frying oil. Hence detailed studies on chemical composition and form of these bioorganic compounds will be done on the basis of chemical analysis.

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