
Glossary

absorption the incorporation of a substance into another substance

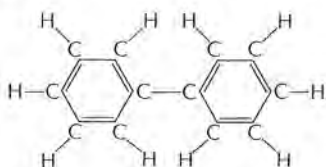
adsorption the adhesion of a substance onto another substance

anaerobic in the absence of free oxygen

androgen a hormone usually produced in the testes or adrenal cortex or a synthetic substance which will stimulate the development of secondary sex characteristics.

axon a nerve cell extension that carries impulses away from the body of the cell

biphenyl a chemical compound with the following form:

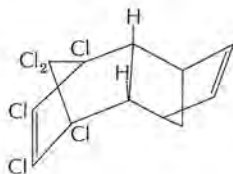


When one of the hydrogens of this compound is replaced by a chlorine, the compound is called a chlorinated biphenyl. If more than one hydrogen is replaced by chlorines, the compound is called a polychlorinated biphenyl.

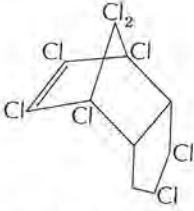
carcinogen a substance producing or inciting cancer

chlorinated hydrocarbon a hydrocarbon (a compound of hydrogen and carbon) in which a chlorine atom occupies a position normally occupied by a hydrogen atom. Examples of chlorinated hydrocarbon insecticides follow.

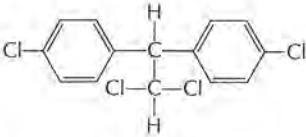
aldrin



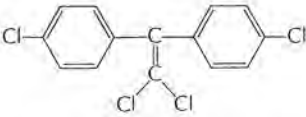
chlordane



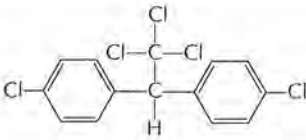
DDD (dichlorodiphenyldichloroethane)



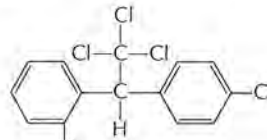
DDE (dichlorodiphenylethane)



DDT (dichlorodiphenyltrichloroethane) Two of several isomers are shown. Commercial DDT is usually composed of 15 to 20% of the *o,p* form and 80% of the *p,p* form.

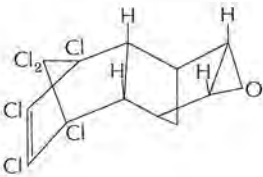


Para, para-DDT

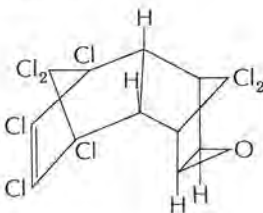


Ortho, para-DDT

dieldrin



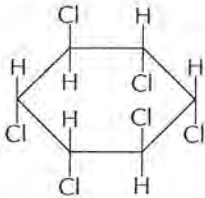
endrin



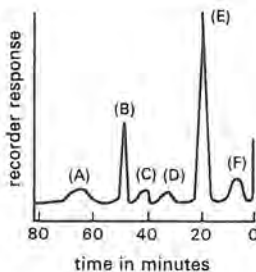
heptachlor



lindane

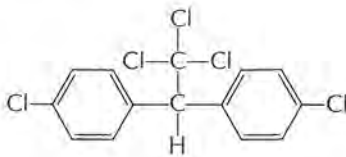


chromatography, gas a technique for separating and analyzing components of a fairly volatile mixture performed, basically, in the following manner: A column, consisting of a U-shaped glass tube containing an inert, finely divided solid, is maintained at a constant temperature in a liquid or air bath. A carrier gas is forced through the column at a desired rate and, when this rate becomes stable, a sample of the mixture to be analyzed is injected by a syringe into a vaporizing section at the front end of the column. The gas then passes through the column and, as it gradually emerges, its composition is monitored by a detecting device attached to a recorder which draws a peak whose area is proportional to the amount of the component present in the mixture. A chromatogram of a mixture of the components A, B, C, D, E, and F follows.

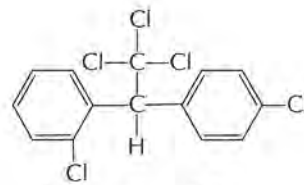


chromatography, thin-layer a method of separating and analyzing components of a solution. A drop of the solution to be analyzed is placed on a glass plate that has previously been coated with a thin layer of a powdered absorbing substance. The plate is then stood in a layer of a solvent which proceeds to rise up the plate. Different components of the mixture will migrate with the solvent to different positions on the glass plate.

- dendrite** a usually branching nerve fiber that carries impulses toward the nerve body
- endocrine substances** secretions produced within the body that are transported by the bloodstream to other parts of the body
- endoplasmic reticulum** a series of membrane enclosed channels in the cytoplasm (non-nuclear portion) of the cell, thought to function in the transport and distribution of substances between the nucleus, cytoplasm, and cell membrane and to function as a framework providing manufacturing surfaces for the cell. Smooth endoplasmic reticulum (as opposed to rough) does not have ribosomes (sites of protein synthesis) along its outer surfaces.
- entomologist** a scientist who studies insects
- entomophagous** a creature who feeds on insects. An entomophagous insect would, therefore, be an insect-eating insect.
- enzyme** any of a number of substances which bring about or accelerate reactions at body temperatures without being destroyed themselves: an organic catalyst
- estradiol** a highly estrogenic hormone found especially in the fluid of the ovary's follicles
- estrogen** female sex hormones found in the ovary or synthetic substances which stimulate the development of female secondary sexual characteristics and the periodic ability to conceive
- food chain** a sequence of organisms, each of which uses the next lower member as a food source
- glucose** a simple sugar which, along with water and oxygen, forms an end product of photosynthesis. It may be broken down to yield energy, or may be used as a raw material for the synthesis of other compounds such as fats, proteins, sucrose, or the storage product starch.
- half-life** the time required for half of a particular substance to disintegrate
- hematopoiesis** the formation of blood or of blood cells in a living body
- histology** the study of tissues
- hydrolysis** a chemical reaction involving the addition of a water molecule
- hydroxylation** the introduction of an hydroxyl group (OH) into a substance, usually in place of hydrogen
- in vitro** an experiment conducted on tissues or cells outside of a living body, literally "in glass" or in a test tube
- in vivo** an experiment conducted within a living body
- ion** a charged atom or group of atoms
- isomers** chemical compounds which contain the same number of atoms of the same elements but which differ in structure and properties. Following are the structural formulas of two isomers of DDT.



Para, para-DDT



Ortho, para-DDT

- leguminous** pod-producing plants such as peas and beans, also fodder plants such as clover, alfalfa, and soybean
- metabolism** the sum of the processes by which a particular substance is handled in the living body
- microsome** a cell fraction obtained by centrifugation consisting of fragments of the endoplasmic reticulum (see definition above) and of ribosomes (the sites of protein synthesis in the cell)
- molecular weight** the sum of the atomic weights (the average weight of the atoms of an element) of all the atoms in a molecule of a substance
- mutagenesis** the induction of a mutation or basic alteration, especially in hereditary material
- nonpolar solvent** a solvent made up of molecules which have no measurable separation of positive and negative charge centers. Nonpolar compounds are best dissolved by nonpolar solvents. Polar compounds, those with a measurable separation of positive and negative charge centers, are most easily dissolved in polar solvents.
- oxidation** the removal of an electron from a molecule. An oxidation reaction often involves the addition of oxygen or the removal of hydrogen from the molecule.
- phytotoxic** poisonous to plants
- progesterone** a female sex hormone necessary to maintain pregnancy
- RNA or ribonucleic acid** the hereditary material found, unlike DNA, in both nuclear and non-nuclear portions of the cell which acts as a template for protein synthesis
- solution** a gas, liquid, or solid which is homogeneously mixed with another gas, liquid, or solid and will not separate under normal conditions
- steroid** a complex molecule composed of four interlocking rings of carbon atoms with various side groups attached to them. Steroids, which include some hormones and some vitamins, are insoluble in water but soluble in ether.
- suspension** a mixture of solids, liquids, gasses, or combinations of the three which will separate into their constituent elements unless constantly agitated
- testosterone** a male sex hormone that stimulates the development and maintenance of masculine secondary sex characteristics

translocation the conduction of soluble material from one part of a plant to another, or from one location to another

trophic level the position of an organism's nutritional requirements in a larger scale of such requirements

veratrine a poisonous mixture that is a strong local irritant and muscle and nerve poison, used as a counterirritant in arthritis and as an insecticide

- 8 Gordon Smith from National Audubon Society
- 11 Black Star
- 15 Courtesy of Harmon Henkin
- 18 Courtesy of *Organic Gardening and Farming*
- 22 Courtesy of James Staples
- 23 Courtesy of James Staples
- 26 Courtesy of Wisconsin Department of Natural Resources
- 31 Elizabeth Hecker
- 34 Courtesy of United Nations
- 38-39 Michael C. T. Smith from National Audubon Society
- 44 Photo Researchers, Inc.
- 48 Courtesy of Harmon Henkin
- 52 Photo Researchers, Inc.
- 53 Courtesy of Shedd Aquarium; courtesy of U.S. Department of the Interior, Fish and Wildlife Service; Gordon S. Smith from National Audubon Society
- 56 Courtesy of Michigan Department of Conservation
- 65 Courtesy of Harmon Henkin
- 70 Courtesy of Harmon Henkin
- 74 Courtesy of Michigan Department of Conservation
- 76 Courtesy of Michigan Department of Conservation
- 80 Dave and Lyn Hancock
- 83 Courtesy of Edward M. Brigham
- 86 UPI
- 90 Courtesy of Harmon Henkin
- 105 Courtesy of Harmon Henkin
- 114 Elizabeth Hecker
- 122 Both, U.S. Department of Agriculture
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