

## X

**xanthan** A microbial anionic polysaccharide, composed of glucose, mannose, glucuronic acid, acetyl groups and pyruvate, formed by *Xanthomonas campestris*. It is highly viscous, pseudoplastic, displays suspending ability and compatibility with acids and bases, forms gels with galactomannans, but is not thixotropic. It is used in the preparation of salad dressings, oil well drilling muds, acid and alkali cleaners, and in enhanced oil recovery.

**Xanthomonas** A genus of the pseudomonads which includes important plant pathogens. *X. campestris* is used in the production of xanthan gum.

**xanthophyll** Any of a number of structurally related plant pigments based on a tetraterpene structure that contains oxygen functions such as hydroxyl groups borne on the cyclic ends of a carbon chain consisting of a series of conjugated double bonds.

**X chromosome** One of a pair of chromosomes found in diploid organisms in which sex determination is linked to specific chromosomes. *See* sex chromosome.

**xenobiotic** A chemical compound that is not normally produced or metabolized by, or associated with living organisms; a compound synthesized by man.

**xerogel** A solution of linear molecules whose movement, relative to one another, is restricted by cross-linking or physical interaction, producing a three-dimensional network of solvated polymer chains. A given polymer matrix only forms xerogels in a limited range of solvents in which the individual polymer chains are inherently soluble.

**xerophyte** A plant adapted for growth under dry conditions.

**x-ray** (1) Electromagnetic radiation with a wavelength less than 0.1  $\mu\text{m}$  produced from any manmade machine. *Compare* gamma-ray. (2) A picture generated by passing x-rays through an object onto a photographic plate or film.

**x-ray crystallography** A technique for determining the structure of crystalline materials, or macromolecules that show repeat structure. The possible structure is deduced from the diffraction patterns generated when a beam of x-rays is passed through the sample. The use of x-ray crystallography is important in the determination of the structure of proteins and nucleic acids.

**x-ray therapy** The treatment of disease, such as cancer, using controlled levels of x-rays.

**xylan** A polymer of xylose; a component of hemicellulose in plants. Xylans are used in the production of furfural, which is used in the manufacture of plastics.

**xylem** The water-conducting tissue in plants.

**xylene** Any of three aromatic hydrocarbon isomers, structurally derived by methylation of benzene, that are obtained by distillation of coal tar or oil. Xylene is used in fixing specimens for microscopic examination and as an intermediate in the manufacture of dyes.

**xylose** An aldopentose sugar that occurs in hemicellulose.

**xylose isomerase** An enzyme that catalyzes the interconversion of the pentoses xylose and xylulose. The enzyme occurs in a large number of microorganisms and has been developed commercially for use as a glucose isomerase.