BIOPHYSICS

"Hot" Sugars Developed

Specifically labeled carbon atoms in the sugar molecule will help scientists learn about the fundamental chemical processes in living organisms.

➤ "HOT" SUGAR, much too "hot" to be put in your coffee or tea, will soon be giving scientists new knowledge of fundamental chemical processes in the body of living organisms, from man to bacteria.

This "hot" sugar is hot because it has one atom of radioactive carbon 14 in its molecule. Labeled with this atom, it can be followed in its path through the body. From study of its course and the reactions it enters into, scientists hope to learn much that may prove useful in fighting cancer, tooth decay and maybe many other diseases.

Bacteria probably will be among the first living organisms to be fed "hot" sugar. Scientists hope that through this, they can find a vulnerable point in the body chemistry of bacteria that can be attacked by some chemical. Then more specific drugs to destroy disease germs could be developed.

Just which line of disease fighting can be helped by the radioactive sugars cannot be told at present. Scientists now are in the map-making stage of study of the body's handling of such sugars. As one of them puts it, the different roads the sugars take through the body must be learned before the autos on the roads can be counted. In other words, the normal sugar-handling processes must first be learned before the scientists can search for abnormal processes in any disease.

A method of making specifically labeled radioactive sugars has been developed by Dr. Horace Isbell and associates at the National Bureau of Standards. The carbon 14 atom, which labels the sugar, can be put in different positions on the sugar molecule, thus giving scientists even more specific information about what happens to the sugar in the body.

This "hot" sugar is not only too "hot" for use as a sweetener of tea or coffee, it is also far too expensive. Cost of making it runs about $28,000 an ounce.

Development of the specifically labeled radioactive sugars was announced by Dr. Isbell to a group of youthful scientists, the 40 high school boys and girls who were in Washington for the finals of the Science Talent Search conducted by SCIENCE SERVICE for Westinghouse scholarships.

Science News Letter, March 8, 1952

TECHNOLOGY

New Way Found to Clean Atmospheric Pollution

➤ TO PREVENT atmospheric pollution, a successful experimental plant to clean smoke from ferromanganese blast furnaces has been developed. It reclaims manganese particles and re-uses stack gases for fuel.

A report on the development was presented to the Air Pollution Abatement Conference in New York by C. A. Bishop, research associate of the United States Steel Co. Different gas-cleaning equipment is needed, Mr. Bishop said, for ferromanganese blast furnaces than for pig iron blast furnaces.

Fumes from ferromanganese furnaces contain a dust particle varying in size from four millionths to four hundred-thousandths of an inch. This material makes cleaning ferromanganese blast-furnace gas vastly different from the cleaning of basic blast-furnace gas.

A method found satisfactory for cleaning fumes used a spray tower which cooled the gases from 700 to 350 degrees Fahrenheit by evaporating water in the tower. The dust in the fumes was collected and formed into "briquettes" which could be stored in open areas without creating air-pollution problems. The process was found satisfactory in a pilot plant. Now a plant has been designed to clean 135,000 cubic feet of ferromanganese blast-furnace gas a minute.

Science News Letter, March 8, 1952

Question Box

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