

American Chemical Society

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Chemistry Room 107

Social/Refreshments starting at 6:45

Presentation starts at 7pm

Dr. Joe A. Vinson



Dr. Joe Vinson was born in Arkansas and grew up in the San Francisco Bay area. He attended college at the University of California at Berkley, where he received his B.S. in chemistry in 1963. He received a M.S. degree (in physical organic chemistry) at Iowa State University in 1966. He received a research assistantship at the Ames Lab of the Atomic Energy Commission at Iowa State and received a Ph.D. in organic and analytical chemistry in 1967 under the direction of Dr. James Fritz. After several teaching positions in Pennsylvania and a two-year stint in industry at J. T. Baker Chemical Company, he returned to academe and is now a professor of chemistry at the University of Scranton in Northeastern Pennsylvania. His research has been featured in Prevention, Psychology Today, Consumer Reports, AARP, Tufts Health & Nutrition Newsletter, US News & World Report and lampooned in a cartoon in Time magazine. He has appeared on TV-Good Morning America Sunday and radio-NPR All Things Considered and The Peoples' Pharmacy, as well as being mentioned by Jay Leno and Rush Limbaugh. Dr. Vinson is the author of over 70 publications. His research interests are wide-ranging and include drug analysis in physiological fluids and the effect of vitamins, minerals, and antioxidants on nutrition and health.

Drug Screening in Physiological Samples: An Olympian Task

Drugs in physiological fluids such as blood and urine are now tested in a variety of settings: the workplace, for insurance screening, in the hospital, and for traffic accidents and fatalities. Analysis in physiological fluids represents a formidable task for the clinical or analytical chemist. The problems include (1) a low concentration of the drug; (2) the drug is often metabolized; and, (3) the presence of endogenous compounds that may interfere in the analysis. After the initial screen to determine the presence or absence of a drug or drugs, the analyst may need to confirm the identity by another analytical technique and/or quantitate the drug. In this presentation, we will review the nature of commonly used and abused drugs including alcohol, amphetamines, barbiturates, tranquilizers, narcotics, and marijuana. Their pharmacology will also be described. The methods used to isolate and concentrate drugs will be discussed. These include liquid-liquid extraction and the latest solid-phase extraction techniques. The analytical techniques such as thin-layer chromatography, gas-liquid chromatography, mass spectroscopy, and immunoassay methods will be critically reviewed. Novel samples that can be analyzed such as hair will also be described.