Safety aspects of food preservatives.

Parke DV, Lewis DF.

Division of Molecular Toxicology, School of Biological Sciences, University of Surrey, Guildford, UK.

The use of food preservatives, such as benzoic acid, nitrites, and sulphites, as antimicrobials, and butylated hydroxyanisole (BHA), butylated hydroxytoluene (BHT), ascorbic acid and tocopherols, as antioxidants, has probably changed food production patterns and eating habits more than has the use of any other class of food additive. These food preservative chemicals confer substantial benefits on man, not only by the preservation and increased palatability of food, but also by affording protection against the pathological effects of reactive oxygen species (ROS) which are associated with cancer, cardiovascular disease and aging. Nevertheless, although most preservatives are now considered to be without potential adverse effects and are classified as GRAS, there have been problems concerning the safety of some of these chemicals, including the possibility of allergies from benzoic acid and sulphites, the formation of carcinogenic nitrosamines from nitrites, and the possible rodent carcinogenicity of BHA and BHT. The mechanisms of this toxicity at high dosage, the roles of the cytochromes P450, and the generation and scavenging of ROS in the toxicity of these chemicals, are reviewed and discussed.