V. OPINION

Hydrogen peroxide is GRAS when used as a bleaching agent in foods and in cotton and cotton fabrics for dry food packaging. It is considered GRAS by the Department of the Treasury in the treatment of wines. It is used as an antimicrobial agent in cheese manufacturing under standards of identity and also in whey processing.

Consumer exposure data indicate only 8 mg per capita per day are used by food manufacturers and much of this would be destroyed or dissipated during processing. Toxic effects in animals by all routes studied occurred only at levels several orders of magnitude greater than man's possible exposure from food sources or packaging materials. There is no evidence that hydrogen peroxide is carcinogenic, teratogenic, or mutagenic at levels present in foods treated with hydrogen peroxide during processing.

Vigorous treatment of foods with hydrogen peroxide may cause some destruction of ascorbic acid, methionine, and cystine. Under the conditions normally employed, the Select Committee believes their loss to be nutritionally insignificant.

Various oxidation products of normal food constituents are formed by the action of hydrogen peroxide. It is possible that such products might include epoxides or peroxides of unsaturated fatty acids and sterols, some of which are suspected of being carcinogenic or atherogenic under specialized conditions. However, none of the oxidation products thus far tested has proved carcinogenic when given by mouth, even at levels many times greater than any reasonable intake in food. Angiotoxicity has been produced only with amounts of sterol oxidation products several orders of magnitude greater than would be produced under conditions currently practiced. There is no evidence that such products are, in fact, produced under current conditions of hydrogen peroxide usage. Because of the vulnerability of epoxides and peroxides to gastrointestinal action, only a small fraction of the amount ingested would be absorbed and this in turn would be subjected to hydrolysis by liver enzymes.

Although there is no evidence that the present usage of hydrogen peroxide in foods poses a hazard to consumers, insufficient data are available to ensure a lack of hazard with all foods or when more rigorous treatments are employed, using higher concentrations, prolonged exposures, or elevated temperatures.

In the light of the foregoing considerations, the Select Committee concludes that:

There is no evidence in the available information on hydrogen peroxide that demonstrates or suggests reasonable grounds to suspect a hazard to the public when it is used at levels that are now current and in the manner now practiced. However, it is not possible to determine, without additional data, whether a significant increase in consumption would constitute a dietary hazard.

There is no evidence in the available information on hydrogen peroxide that demonstrates or suggests reasonable grounds to suspect a hazard to the public when it is used in cotton and cotton fabrics for dry food packaging at levels that are now current or might reasonably be expected in the future.

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