

2,2'azo-bis-amidinopropane as a radical source for lipid peroxidation and enzyme inactivation studies

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1. 2,2'Azo-bis-amidinopropane (ABAP) thermal decomposition produces free radicals that initiate the lipid peroxidation of erythrocyte ghost membranes. 2. Addition of 6-n-propyl-2-thiouracil decreases the rate of the process, both by decreasing consumption of the natural antioxidants of the membranes and by direct interaction with the free radicals involved in the lipid peroxidation. 3. Peroxyl radicals produced in ABAP thermal decomposition inactivate lysozyme, horseradish peroxidase (HRP) and glucose oxidase, in that order. The number of enzyme molecules inactivated per radical introduced into the system increases with enzyme concentration. 4. Competitive studies employing mixtures of enzymes show that the order of reactivity of these enzymes towards the peroxy radicals is the opposite to that obtained for the rate of enzyme inactivation. It is concluded that inactivation efficiency is determined mainly by the average number of free radicals that must react with an enzyme molecule to