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SYMPOSIUM ON EFFECTS OF OXIDIZED LIPIDS ON FOOD PROTEINS AND FLAVOR

Introduction

We were pleased to be invited to organize this symposium for the Protein Subdivision of the Agricultural and Food Chemistry Division. There is no need to remind anyone of the importance of proteins, peptides, and amino acids in all living tissues. They function as structural components, enzymes, regulatory agents, transport factors, and as storage materials in seeds. Proteins as foods are another broad area for which the published literature would fill a library. But all protein foods, both plant and animal, are closely associated with lipids. These lipids contain varying amounts and types of unsaturated fatty acids that can be oxidized, affecting both the quality and the flavor of foods in which they are present.

It is this more specific area, the effects of oxidized lipids on food proteins and flavors, that we selected for discussion. Also of equal importance, though not included in the title, are the effects of peroxidized lipids on enzymes and metabolic systems caused by ingesting protein foods containing lipid peroxides. We have, therefore, organized these sessions into groups devoted to research on plant proteins and on animal proteins, with papers describing research on enzymes and mechanisms as the connecting link between the two.

In plant systems lipoxygenase has been considered the primary catalyst of lipid oxidation, although heme catalysis is also a cause in some cases. In animal systems hemoproteins are the major catalysts of lipid oxidation. There are similarities and differences between the two systems and numerous papers have reported these studies. We have tried to select the best authorities in the areas of lipid oxidation and their effects on plant proteins, animal proteins, and on enzymes and metabolic systems. We cannot possibly cover all phases of research on the interactions of peroxidized lipids with proteins but we hope that this symposium, while not covering everything, will cover the important points.

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