

# **SWEETENERS**

## **Issues and Uncertainties**

**ACADEMY  
FORUM**

**Fourth of a Series**

**SWEETENERS**  
**Issues and Uncertainties**

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NATIONAL ACADEMY OF SCIENCES

WASHINGTON, D.C.  
1975

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## FOREWORD

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The fourth public Forum of the National Academy of Sciences was held on March 25-26, 1975. Like its predecessors, it was convened to appraise the complexities inherent in responding to the following question: How can science, industry, the public, the law, and the government merge their interests and needs to the benefit both of the individual and of the society that they constitute and serve?

The subject under discussion was "Sweeteners: Issues and Uncertainties." More than fifty individuals representing public interest groups, private industry, government regulatory agencies, and the scientific community appeared before the Forum with a wide array of opinions and facts. Their data were drawn from research in process, past and present literature, practical experience in the public sector, from the search for new sweeteners at widely spaced points on the globe, and statistics revealing shifts in patterns of sweetener consumption that chronicled and translated into new perspective some of the pervasive changes that are occurring in the American way of life.

In addition, the principal participants met for one full day prior to the plenary sessions to work in small groups toward defining the issues and information that would be most useful to the considerations of the Forum. It is hoped that each of them drew some measure of satisfaction from the ultimate success of this Forum, a direct result of their investment of time and energy. Both their preparations for and participation in the Forum sessions were enthusiastically guided by their co-chairmen, Michael Kasha and Carl Pfaffmann.

Although this publication of the Forum's proceedings does not pretend to be a definitive text on sweeteners, multiple aspects of the taste for sweetness and its consequences are discussed on every page.

The reader who looks beyond the data to the broad issues, to the identities and interactions of the participants, also will find a certain amount of light.

Robert R. White  
*Director*

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DAY I



## INTRODUCTION

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Michael Kasha

The use of sweeteners in the human diet is not a subject of worldshaking consequences. However, we as a society may survive the threat of the atomic bomb only to be drowned in bureaucratic paperwork or the unforeseen results of less-dramatic issues. Sweeteners have extensive health, nutritional, psychological, and economic implications for their users -- and that is all of us. During the next two days we will be attempting to ascertain those implications and to determine the risks and benefits involved in the use of a variety of both nutritive and nonnutritive sweeteners.

It is appropriate to mention the difference between a scientific symposium and a forum of this kind. Numerous detailed scientific symposia on sweeteners have been held in the last few years. On most of those occasions scientists addressed scientists, and, because of their own specializations, a limited exchange with the public occurred. But these matters become public issues. They become questions of regulatory functions in the government. They become great issues for the consumer and for the manufacturer. The Academy Forum provides a mechanism by which the public -- the informed, knowledgeable, active public -- is able to ask in an open fashion those questions for which they think there are answers.

When the experts talk among themselves, they discover that the answers are conditional rather than definitive. It is this conditional nature of both sides of every question that we would like to expose and reveal as fully as possible in this Forum. In order to do this we have a special structure of four groups of participants: First, there are the speakers, who are asked to avoid long lectures and to summarize the chief points of their understanding of their specialty. We have a panel, which is composed of selected individuals who will try to fill

in the missing gaps or to bring up questions that focus attention on critical parts of each presentation. In the first few rows of the auditorium we have discussants, who are also experts in various fields and who will provide additional tutelage, inquiry, and questioning of the speakers and the panel. Last and perhaps most important of all is the general audience. The audience is encouraged to be an active participant in this Forum and to raise any questions when the opportunity is given.

We will begin with a review of perspectives on sweeteners that constitutes a panorama of the subject, starting with their biological and cultural role, moving on to their patterns of use, including related medical and toxicological issues, and finally covering regulation of that use. Later today we will discuss sugar, sucrose particularly, but by implication all sugars that are present in foods, either by addition or that occur in them intrinsically. Although we take sugar for granted, there are constant changes occurring in modern society's use of it. It will be interesting to learn more of what is known and unknown about the use of sugar.

On Day II we will focus on nonnutritive sweeteners, which are of great psychological importance. We will draw from the previous day's understanding of the meaning and problems of satiety in the diet. In particular, we will see to what extent questions now can be answered concerning the benefits and risks of saccharin, cyclamates, and others. During the last session we will project into the future to discuss new options for natural and artificial sweeteners. Are there directions that are not commonly understood or used today that might alleviate some of the problems with sweeteners? What are the points of decision? Are there labeling programs that the public requires and deserves? Can we, in fact, advise regulatory agencies and the government in a cogent manner? All of these questions will be before us as we proceed through the discussions of the next two days.

The financial support for this Forum comes from the Food and Drug Administration. This is particularly appropriate since the charter of the National Academy of Sciences, signed by Abraham Lincoln in 1863, indicated that the Academy was to serve as an official adviser to the federal government on any question of science or technology. From our discussions, interrogations, and information presented in settlement of questions, we hope that the Food and Drug Administration, as well as other related agencies, will find the insights and material proffered to be useful.



# PERSPECTIVES ON SWEETENERS