



**SPICES  
CONDIMENTS  
AND SEASONINGS**

# Spices, Condiments, and Seasonings

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To the memory of Dr. Carl R. Fellers, Professor of Food Science and Technology; head of the department at the University of Massachusetts; one of the founding fathers of the Institute of Food Technology; an inspiring teacher, a dedicated leader and father; a student's friend, and the gentleman who guided my early professional career in food science and technology.

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# Preface

*Spices, Condiments, and Seasonings* has been written for use as a text in food technology and as a general reference book for anyone associated with the food industry who has a desire to know more about these fabled, fragrant, pungent plant substances and how they are utilized in the formulation of condiments and seasonings. Dietitians concerned with low sodium diets will find the spice substitute information and nutritional data on spices useful.

Part One introduces the reader to the significance of spices throughout history in a concise, chronological sequence of events.

Part Two defines spice and describes fifty of the more prominent spices, culinary herbs, and spice blends. The description of each spice includes the following: common name, botanical name, family, historical/legendary backgrounds, indigenous and cultivated sources of supply, physical and sensory characteristics, extractives obtained therefrom with their chemical and sensory attributes, federal specifications, approximate composition and nutritional data, household and commercial uses. Photographs of each spice and sketches of each spice plant are included. Recipes for home cooking with spices and herbs have been omitted purposely as there are many good spice cookbooks available. Suggested spice substitutes for salt in sodium-restricted diets are listed together with the natural antioxidant activity of each spice. The microbiological aspects of spices are covered and the means for sterilizing them described.

Part Three includes a discussion of spice extractives and soluble spice, how they are made, used, and substituted for freshly ground spices. Current federal specifications and proposed specifications for those not listed under federal guidelines are presented. Analytical methods for the determination of residual solvents in spice extractives, volatile oils, piperine; color values for capsicum, cumin and paprika; Scoville heat units for capsicum; storage conditions and labeling requirements are included. The advantages and disadvantages of various spice forms are outlined.

Condiments and sauces are discussed in Part Four. A new definition for condiments is advanced. Formulas for the three simple condiments—celery, garlic, and onion salts and several compound condiments—prepared mustards, tomato catsup, chili sauce, meat sauces, Worcestershire sauce, and soy sauces—are clearly demon-

strated. Over 100 sauces are listed with their predominant flavoring ingredients. A few original formulas for instant sauces are also presented.

In Part Five a new definition for seasonings is proposed. Formulas for seasoning prepared meats, bouillons, instant soups, instant sauces, instant gravies, and miscellaneous products are given. The technology of seasoning is discussed from a practical point of view and means for duplicating a soluble pork sausage seasoning, without the use of sophisticated laboratory equipment are outlined.

A complete bibliography is included after each of the five sections.



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PART ONE

# The History of Spices



# A Short Look at the History of Spice

The story of spices and the spice trade is a long and romantic one replete with battles, power struggles, conquests, intrigue—all the elements of a first-rate swash-buckling tale. Spices were a valuable commodity and as a result the spice trade was much fought over.

Undoubtedly, prehistoric man learned to discriminate between edible and inedible plants either by trial and error or by watching the birds and animals try something because it looked or smelled good and discard that which was objectionable.

Herbs and spices were not only used for meat (food) but in medicines for healing the sick. It is believed that the practice of utilizing herbs as medicines began more than 5000 years ago by Fo Hi, a Chinese Emperor. The first Chinese herbal contained over a thousand remedies attributed to herbs. The Egyptian Papyrus, written around 3000 BC, is the oldest known, recorded manuscript dealing with the healing of the sick. Records exist from 400 years later of the Babylonians prescribing herbal medicines based on earlier data found in the Papyrus.

Herbs and spices were also used as entrapments for making love, for the acquisition of wealth, for embalming and burying the dead. King Solomon, the richest and wisest of all kings, acquired much of his wealth from spices.

And when the Queen of Sheba (now called Yemen) came to Jerusalem with a very great train, with camels that bare spices, and very much gold and precious stones: and when she was come to Solomon, she communed with him of all that was in her heart. . . . she gave the king an hundred and twenty talents of gold, and of spices very great store, and precious stones there came no more such abundance of spices as these which the Queen of Sheba gave to King Solomon. I. Kings 10:2 and 10.



Ancient Egyptians preserved the revered bodies of their kings by mummifying them with spices and herbs. Anise, sweet marjoram, and cumin were used at first to be followed by cinnamon, cassia, cloves, and others as they became available from the Far East. This practice of using spices is mentioned in two familiar verses from the New Testament, St. Luke 24:1 and St. John 19:40:

Now upon the first day of the week, very early in the morning, they came unto the sepulchre, bringing the spices which they had prepared (to annoint him); then took they the body of Jesus and wound it in linen clothes with the spices, as the manner of Jews is to bury.

The first reference to the spice trade we find in the Bible appears in Genesis 37:25–36. Some historians have calculated the year to be 1729 BC.

And they sat down to eat bread: and they lifted up their eyes and looked, and, behold, a company of Ishmealites came from Gilead with their camels bearing spicery and balm and myrrh, going to carry it down to Egypt.

The Ishmealites were Arab merchants who dealt in the transport of spices thousands of miles from the east, by camel caravan and ship, from India, Burma, the Malay Peninsula and the Persian Gulf area to the trading centers of Alexandria and Carthage in the west. Their journeys took as long as four or five years.

There are over sixty other references in the Old Testament relating to the high esteem in which spices were held in ancient times. There are numerous historical records written by such renowned historians as Herodotus (484–424 BC), Hippocrates (477–360 BC), the father of modern medicine, Theophrastus (372–287 BC), considered by many to be the father of botany, Pliny the Elder (62–110 AD), the greatest writer of Vespasian's reign, whose zeal for scientific truth and research caused his death in the destruction of Pompeii by the erupting Vesuvius, and Publius Cornelius Tacitus, an important historian of Rome (55–117 AD), which document the trading practices of the Arab spice merchants between the Orient and the western world up to the Christian Era. Each contributes much to the intriguing, if not always true, story of spices. It is not the purpose of this chapter to document the complete fascinating history of spices, but rather to provide sufficient information on the significant contributions to history that events have provided in order to give the reader a fuller appreciation of the value of spices.