

Nina L. Etkin: Edible Medicines: An Ethnopharmacology of Food

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In this wide-ranging book, anthropologist Nina Etkin examines the healing properties of an array of foods across many cultures around the globe. Her analysis is informed by the literatures of ethnopharmacology, human evolution, applied biology, food history, nutrition, botany, geography, microbiology, the history of medicine, alternative and complementary medicine, and the science of food and agriculture. Throughout the book she interweaves findings from her 35 years of fieldwork among the Hausa people in Nigeria to bolster her central argument that biocultural and coevolutionary perspectives help to explain the interactions between culture and food and to “understand the health implications of people’s food-centered actions in the context of real-life circumstances” (p. 4). Both perspectives hinge on the principle that food, people, environment, and culture are best understood through their complex and dynamic relationships to one another. The biocultural view understands that the way people perceive, identify, and use food affects their health, while various foods themselves possess intrinsic properties that influence medical outcomes. The coevolutionary perspective delves into genetic, chemical, and metabolic dimensions of plants and animals to investigate how “reciprocal evolutionary changes occur in interacting species” (p. 4). The analysis centers on the cultural contexts in which people use food, acknowledging the complexities “of food choice, as well as the blurred distinctions between food and medicine” (p. 3). She treats her subject with breadth and depth, evident from the more than 36 pages of references, a noteworthy feat for a single-authored book. The author emphasizes “the pharmacologic potential of diet” (p. 3). Where appropriate, as in the extended discussion of cacao and chocolate as “vehicles of sociability,” she calls attention to how political-economic processes have shaped diverse cuisines around the world.

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The first two chapters form the ground upon which the rest of the book—five chapters that each tackle a different food category—is built. Thick descriptions of Hausa foodways illustrate key moments in the narrative. In Chapter 1, where Etkin introduces the concept of the *organoleptic* characteristics of food and medicine—sight, taste, smell, texture, and sound (such as the “crackling sound of crushed medicinal leaves” or the “solid echo from thumped calabashes” [p. 33])—she demonstrates how people use these characteristics to decide whether to reject or accept a food or medicine (many of us do this in the produce section of the market when we reject bruised fruit). Tastes are one way that people imbue food with cultural identity (p. 32). She deepens this observation with a nuanced interpretation of how the taste of plants defines their “curing properties” (p. 34) and links them to specific diseases within specific cultural contexts. To illustrate her point she reports how the Hausa, choosing medicinal foods based on taste, treat measles according to the stage of the disease and its symptoms. They use bitter and astringent foods to make the first signs of rash mature; cold and aromatic foods as the disease progresses because, according to the Hausa, “the illness ‘likes’ those qualities” (p. 34); and acid and sour tastes in case of fever and nausea. In the last stage the Hausa refrain from using medicinal foods and instead apply “astringent and emollient medicines” to the sores (p. 34). This writing style of drilling down from the broad argument to the concrete example is one of the book’s strengths. Etkin serves up the proof with the pudding. She grounds the assertions of her arguments with vibrant examples from her fieldwork or the fieldwork of others. Examples come from others’ investigations into the foodways of people as geographically dispersed as the Chinese; the Ndembu of Zambia; the Kenyah Leppo’Ke of Borneo; the Matsigenka in Amazonia; the Tzeltal Maya in Chiapas, Mexico; and the Yucatec Maya, among others. Researchers in many fields will find this work compelling. Its deep-science descriptions of the biomedical properties of foods in specific cultural contexts make this a valuable book for graduate students and researchers of ethnopharmacology, ethnobotany, and nutrition. Its appendix listing the constituents and activities of many of the spices, herbs, and plant parts borrowed from other cultures and now familiar to Westerners helps explain the popularity in mainstream health magazines and health-food stores of supplements derived from them. While the author’s goal is not to promote or favor the use of such substances in any commercial way, her detailed account of the properties of certain plants and spices opens a window for Western readers’ comprehension of the complexity of plant biology and the relationship of this biology to human culture.

Throughout the book, Etkin enriches the text with examples from her years of fieldwork among the Hausa people of Hurumi (a pseudonym) village in Nigeria. The textual descriptions and reports of her research findings flavor the book like the spices whose origins, uses, and properties she so eloquently describes. In the introduction, readers are first introduced to the Hausa. We learn that the Hausa engage in intensive agriculture based on millets, sorghum, and cowpea. The people supplement production of these staples by collecting wild plants, cultivating leafy greens, managing livestock on a small scale, growing some crops for cash, and trading in “locally produced items such as leather goods and fiber mats and in exotic commodities such as medicinal plants and salt” (p. 21). When introducing the main

crops of the Hausa, she provides three names for each: the Hausa name, the English, and the scientific. She provides an overview of the importance of “wild and semiwild species in Hausa medicine and food,” reporting that 235 of the 264 local plants used as medicine “embody significant diversity in both species and pharmacology” (p. 21). We learn the locations of the plants and the types of lands upon which they grow, whether they are public lands, village farms, or the borders of farms or paths. The Hausa people refer to food often in their folklore; one of their proverbs is *Gani ba ci ba*, “seeing is not eating” (p. 31). How the Hausa talk about food reveals their cultural beliefs about the power of plants as medicines. Etkin reports that Hausa have more nuanced phrases for the functions of plant-based medicines than they do for the healthful properties of foods. How people interpret chemical and other stimuli varies across cultures. Human responses to foods range from the rapid to the delayed, depending on how evident or subtle a food’s properties are for interpreting and constructing its usefulness.

Chapter 2 provides a multilayered overview of “the major paradigms that have defined the relationships between food and health through the history of biomedicine” (p. 45). In this chapter and elsewhere she iterates that the boundary between medicines and foods has been blurred periodically since humans began keeping records of medical thought. Etkin discusses the evolution of physicians’ thinking over the millennia, the records of which include 60 medical texts of the Hippocratic *Corpus* dating from the fifth to fourth centuries BCE, Dioscorides’s *De Materia Medica* from the first century, second-century physician Galen’s *On the Faculties of Foods*, and Arabic medical manuscripts that “codified the classical European medical heritage” (p. 51) in writings produced from the ninth to thirteenth centuries. Throughout the discussion she explicates the dominant biomedical paradigms of their times, highlighting the concomitant view of the relationship between food and human health. These paradigms include “models of pathology and health” (p. 50) in which the importance of the role of food in the treatment of disease waxed and waned according to current understandings of the etiology of disease and the relationship between nutrients and health. In the Hippocratic texts, for example, the regulation of diet “was the most prominent element ... with much attention devoted to dietetics in research notes, case histories, lists of diseases and cures, musing on the scientific methods, and therapeutic rationales. A key organizing principle was that all foods contain a single element that, when digested, repairs body tissues and provides energy” (p. 46). The ancient authors of the *Corpus* viewed food as having inherent ability to intervene in the course and outcome of disease. A tradition of using food for its therapeutic value continued through the centuries by both physicians and laypeople alike, with Medieval monks using homegrown plants for healing (p. 52); apothecaries, physicians, grocers, and spice merchants selling “botanical medicines” (p. 54); and Renaissance apothecaries expanding to include New World medicines and foods. Cookbooks of these eras included both recipes and health advice (p. 59). The point is that a “shared medical culture” existed in which knowledge of the medicinal properties of plants appeared in both vernacular and professional texts, and because “virtually all medical care began as family/domestic medicine” (p. 63), women were in charge of taking care of loved ones when they fell ill.

By the nineteenth century, however, as the germ theory and the theory of specific etiology of disease took hold, “biomedicine charted a path into an expanding universe of the infinitely small” (p. 68). Parallel developments in the advancement of medical techniques, particularly in the laboratory, changed medical treatment into “an exercise of formal knowledge” (p. 69) where knowledge gained outside of the laboratory—for example in the kitchen, the domain of women—was devalued. Patients, instead of being treated at home, were increasingly directed to institutional settings, “where food no longer had a therapeutic role” (p. 69). This trend, however, did not preclude early nineteenth-century advancements in the fields of chemistry, biochemistry, and microbiology in which the therapeutic constituents of several plants were isolated, characterized, and refined, thus transforming the biomedical pharmacopoeia forever. Examples are morphine, quinine, and cocaine.

The advent of the era of antibiotics for the treatment of bacterial antagonisms predated the development of a science of nutrition, in which the importance of essential nutrients in disease prevention would be recognized. A stubborn focus on the theories of infectious disease “stalled the exposition of vitamins, even those for which the association between diet and disease had already been recognized” (p. 75). A case in point is the early twentieth-century belief that scurvy was caused by a contagion, despite evidence from the eighteenth century that it could be cured with the ingestion of citrus fruit. In the next few decades, however, identification of vitamins and the essential amino acids ensued, and in 1943 the Food and Nutrition Council of the US National Research Council published its first table of dietary standards (p. 75). An understanding developed that a nutrient-rich diet created a healthy immune system, thereby protecting a person from many types of disease. The general public accepted broad notions of the link between nutrients and health by purchasing newly created, highly processed foods enriched with vitamins. As the diet of Americans changed, the population passed through an epidemiologic transition whereby the leading causes of death—influenza, pneumonia, diarrhea, smallpox, and tuberculosis (Olshansky and Ault 2002)—were replaced by “degenerative diseases, diseases due to stress, and man-made diseases” (Peters and Larkin 2002). The theory of specific etiology, Etkin argues, has failed to help science ameliorate the disease conditions of contemporary society, where people are more likely to die of heart disease, cancer, stroke, and diabetes (Peters and Larkin 2002) than they were one hundred years ago.

From the 1970s onward a trend toward holistic health practices turned toward giving food a prominent role in health promotion once again. Research institutions produced many studies on the health-protective and health-boosting constituents of many foods. One need only peruse the labels on such common foods as ketchup (now billed as a source of lycopene) to see how correct Etkin’s point is that “formerly mundane foods ... have been scientized through reference to ... healthful constituents. ... ” (p. 81). The bioscientific paradigm, while incorporating a more holistic view of the human organism (for whom the pharmacologic potential of food is important), is still grounded in “the tenet that links specific etiology to specific cure” (p. 82). Having laid the groundwork for the rest of the book, Etkin divides the remaining five chapters into discussions of spices, fermented foods and beverages, social plants, animal products, and supplements and health foods.

Chapter 3 takes the reader into the chemical, historical, and biomedical dimensions of spices. A cultural history reminds us of the geopolitical significance of spices along trade routes since as early as the third century BCE (p. 87). Explorers and merchants diffused highly valued spices across the globe. As in other points in the book, Etkin uses political-economy theory to call attention to the “great suffering among indigenous populations forced into plantation spice production for export to Europe” (p. 88). The production of spices, however, has since expanded beyond a few centralized places, and the spices themselves are no longer as valuable as precious metals and gemstones.

Using the case of chile, Etkin illustrates the historical spread of a New World species to the Old World and details the prominent place that chiles held in the diets of peoples living in what is now Central America, thousands of years before Christopher Columbus set sail. The botanical name for the plant genus that includes chiles is *Capsicum*, and all such plants are native to the New World. Once introduced to Europe, chile peppers diffused rapidly to Africa and Asia (p. 90), where they thrived in the tropics. Etkin notes that although chile is native to tropical America, cultures the world over believe it to be native to their own places, so intertwined the spice has become in local cuisines and “culinary identities” (p. 91). Chiles are an important ingredient not only in local cuisines but also in indigenous pharmacopoeias. The author describes the importance of chiles to the Hausa, who use chile (*barkono*) as food and medicine. *Barkono* is used to treat intestinal disorders, skin wounds, fevers, and measles, among other conditions. Etkin places the diffusion and adoption of chiles within the framework of political-economy theory, noting that once they were introduced into the cultures of colonized peoples under European expansion they actually substituted for previously used spices, like black pepper, and became “further transformed in their cultures of destination” (p. 95).

As she does throughout the book, Etkin devotes ample space to scientific assessments of the biochemical composition and pharmaceutical implications of the food category under discussion. In the case of spices, she notes that they represent “considerable botanical and phytochemical diversity” (p. 96) and she refers the reader to the Appendix where the constituents and physiologic effects of thirty-three spices are listed. She then discusses the antimicrobial action of spices, which has been established by “tens of thousands of studies” (p. 98). Such antimicrobial action has been useful to retard the growth of microorganisms in foods in the cuisines of countries with hot climates. She also discusses the use of spices in complex combinations, drawing examples from the Ayurvedic *trikatu*, Chinese five-spice, and *yaji* in northern Nigeria.

In the Hausa culture, *yaji* is a composite spice of pharmacologically dynamic plants that have antimicrobial, antiinflammatory, antioxidant, and carminative characteristics. These spices also are rich in vitamins. The Hausa use *yaji* in the early postpartum period to protect against infection and other childbirth complications. *Yaji* is also mixed in with gruel and fed to newly circumcised boys. The uses of spices at these significant junctures in the life cycle highlight the link between culture and the pharmacologic potential and uses of certain plants.

Chapter 4 illuminates the processes by which certain otherwise unpalatable foods are fermented and details their nutrient content and use as medicinal agents. Etkin

surveys various fermentation techniques and discusses the ubiquity of fermented foods across all cultures. Examples are gruel, bread, soy sauce, yogurt, fish sauces, vinegars, sausages, alcoholic beverages, and coffee and tea. She defines fermentation as “changes rendered by the enzymes of live microorganisms” (p. 108). The advantages of fermentation include the destruction of antinutritional factors and the improvement of digestibility (p. 112). Furthermore, in the fermentation process, proteins become partially hydrolyzed, making more amino acids available for digestion in the human gut. Fermented milks are better tolerated by people who are lactose intolerant. Fermented foods also have antimicrobial and anticancer effects. Drawing once again upon her research among the Hausa, Etkin notes that they use fermented gruels to treat diarrhea in infants, while a fermented condiment called *daddawa* serves as “a protein- and fat-dense soup base and flavor” (p. 128). Fermented foods are also used during transitional times in the life cycle, such as postpartum, weaning, and male circumcision. She emphasizes the “culturally patterned transformation” of particular foods that makes them more nutritious.

Social plants are consumed in groups when people meet for either ordinary (e.g., drinking wine at dinner) or ritualistic occasions (e.g., kava drinking among Pacific Islanders for important social, religious, or political events). In Chapter 5 Etkin argues that whatever benefits or detriments that the plants possess are shared collectively. The ritual of alcohol consumption among U.S. college students comes to my mind. Alcohol, coffee, gums, kava, maté, chocolate, tea, and betel nut are some of the social foods that Etkin examines. When appropriate, as in the case of cacao, Etkin highlights the political economy of the food’s dispersion across cultures.

Chapter 6 departs from the discussion of plants and highlights various medicinal properties of animals and animal products. In this chapter, we learn that the medicinal use of leeches experienced a revival in the 1980s because the medicinal leech (*Hirudo medicinalis* L., Hirudinidae) helps “diminish congestion in damaged tissues” (p. 182) after microsurgery. A detailed discussion of the array of uses of insects in cuisines worldwide informs us that most of the world’s people are not as squeamish about eating them as are the peoples of Europe and the United States (p. 183). Insects are useful at their various life stages for distinct medicinal purposes. They are also used in cuisines and have salutary nutritional profiles “high in calories, fat, unsaturated fatty acids, and protein” (p. 189). Honeybees and bee products have been important to humans for millennia. Not only honey and beeswax but also propolis, “bee glue”; empty honey combs; and bee-collected pollen have been used medicinally by various cultures and are used as part of modern-day complementary and alternative medicine.

After six chapters of cross-cultural analyses of the pharmacologic properties of foods and how they intersect with sociocultural practices, Etkin uses Chapter 7 to focus primarily on the United States and Europe and the development of complementary and alternative medicine (CAM) and functional foods in recent years. CAM includes an array of health-care modalities, such as homeopathy, traditional Chinese medicine, osteopathy, chiropractic, meditation, and dance therapy (p. 205). CAM has become popular among Western populations in the past few decades, and food has taken a central role in the expression and practice of CAM.

A new category of food, called functional foods, has been created to connote human-modified foods that have “physiologic benefit[s] beyond basic nutritive qualities” (p. 207). Etkin categorizes the term *functional food* with recently coined terms like *pharmafood*, *nutraceutical*, *phytoceutical*, and *medicinal food*, which “reveal the cultural constructions of health” and hark back to ideas of specific etiology and specific therapy while also embracing “aspects of holistic/natural healing” (p. 210). While acknowledging that the scientific literature points to real benefits in functional foods, she notes that focusing on food constituents and their physiologic activities provides only an “incomplete perspective on the medicinal potential of food” (p. 211). “One gains more insight,” she writes, “by considering food use in its broadest physiologic and cultural contexts, taking into account the details of preparation and the incidence and quantity of consumption” (p. 211).

When the author turns her attention to a brief discussion of foods manufactured for people with celiac disease, an autoimmune disorder that commonly manifests as chronic malabsorption of nutrients in the small intestine, Etkin mistakenly classifies gluten-free foods as functional foods or nutraceuticals. Gluten-free foods, however, simply do not fit the bill. They are nutritious foods made without gluten-containing ingredients and processed on equipment that is not contaminated with gluten. Whereas mainstream America enjoys wheat bread and pasta as dietary staples, people with CD (who must avoid eating wheat, barley, and rye and their derivatives) eat bread and pasta made from rice, corn, tapioca, amaranth, quinoa, potato, and other flours. Instead of baking with wheat flour, people living with CD bake with an array of gluten-free flours, such as rice, sorghum, and garfava (a blend of garbanzo and fava bean flours) that are not conventional in any sense of the word; they require the addition of binders, such as xanthan gum, that gluten-containing flours, like the various types of wheat, have no need of. Therefore, I am not sure what Etkin means when she writes that “the functional foods industry ... promote[s] gluten-free conventional grains and flours” (p. 214). My point is that gluten-free food is food that can be eaten by anyone. It is consumed as any nutritious food would be consumed, out of absolute necessity by people with CD. People with CD eat gluten-free food because they have to eat, not because they are seeking some extra-nutritive physiologic benefit conferred by other constituents in the food. And unlike people with lactose intolerance, people with CD cannot take a nutraceutical pill to help them digest foods with gluten. Gluten can damage the small intestine of such people, whether or not symptoms are present. The subheading for the discussion, “Eating your way away from celiac disease,” is misleading. CD is an autoimmune problem that can be managed but it does not go away.

Interesting from a coevolutionary perspective is the way in which CD arises at the intersection of food habits and genetics. If Etkin had to include a discussion of CD, I think it would have been more germane to her theoretical framework to discuss CD from this context. In an article on CD’s geographic distribution in human populations, for example, Simoons (1981) hypothesized that the genetic predisposition of CD follows a geographic gradient from the Middle East westward and traces an arc that corresponds to the varying lengths of time that the grains diffusing from the Fertile Crescent, namely, wheat, barley, and rye, have been cultivated. In other words, the shorter the time that these grains have been cultivated

in an area, the higher the prevalence of the disease. As Western Europeans migrated throughout the world, the genetic predisposition toward CD was carried with them. It is one of the most common genetically mediated disease known to humankind and the only one for which the trigger, gluten, is known. A collaborative study found that 1 in 133 Americans ought to have CD, but the vast majority have been either misdiagnosed or not diagnosed at all (Fasano et al., 2003).

In the next section, Etkin discusses the “unnecessarily medicalized” phenomenon of lactose intolerance, which affects 75 percent or more of people worldwide. She insightfully draws attention to the power of the dairy industry in the United States and the market and government forces that promote the notion that lactose intolerance is a treatable condition and that people affected by it should consume milk-containing products anyway, with the help of nutraceuticals. Government subsidies of the dairy industry and government efforts to make “milk the centerpiece in public school lunch programs” (p. 222) taken together help keep “cultural myths about the healthful qualities of milk” alive. Such popular and government pressure to ingest a substance that is indigestible to so many people ignores the diverse makeup of the U.S. population, where African- and Asian-Americans as well as people of Native-American descent tend to be overwhelmingly lactose intolerant. She forcefully and clearly shows the utility of biocultural perspectives in understanding the relationships between the health effects of food and culture. “Normalizing discourses” in the United States have effectively ignored the variability in milk metabolism found among the country’s diverse population groups.

In the last section of this chapter Etkin refers to a case study of CAM that she conducted in Honolulu concerning the use of a Southeast Asian plant called *noni*. Its fruit is thought to have many medicinal properties; its therapeutic role expanded over time from use as primarily a topical medication to now a commonly ingested substance. Although the government of Hawaii at first warned against its use, it has become one of the many food products used in CAM whose popularity has spread globally. “This process embodies elements of cultural constructions and social negotiations of medicine and foods that I have stressed throughout this book,” Etkin notes (p. 225). Some of her study participants grew their own noni and shared it with neighbors. Many of them considered it a traditional Hawaiian medicine.

Edible Medicines uses a multidimensional framework to examine complex relationships. While the author’s argument is persuasive, the language used at times is murky. Jarring to the ear is the repeated use of the word *resonate* as a transitive verb, as in “these four examples also resonate a theme developed in Chapter 3” (p. 148); “molecular homeostasis resonates traditional concepts of health and disease” (p. 82); “this compilation resonates the bioscientific research paradigm in which natural products are reduced to their constituents ... ” (p. 96); and “these forms of biotherapy ... resonate the theme of coevolution” (p. 197). I found its use to obscure rather than to clarify key points she was trying to make. She could have recast the sentences and used *resonate* intransitively, as she did correctly in the last sentence of the book: “This synergy of biology and culture resonates through all chapters of this book.” My guess, however, is that whenever this verb appears, the relationship she intended to characterize is probably complex enough to merit a

rewrite that results in two or more sentences. If this valuable book goes for a second printing, I recommend that these passages be rewritten for the sake of clarity.

This idiosyncrasy aside, *Edible Medicines* ought to be considered a major work. Overall it is a nuanced, comprehensive treatment of several intersecting themes and subjects that demonstrates the impossibility of separating biology and culture: They have always been and will forever be intertwined. One does not determine the other, but the actors involved—people and plants and animals of all kinds—dance a dance with some pretty complex choreography. This book is an extremely valuable contribution to understanding this choreography and to pointing the way toward further research utilizing similarly synthesizing theoretical frameworks. It reminds us that much is lost to the pharmacologic benefit of humanity with the narrowing of biodiversity through habitat destruction and the economic pressures of globalization.

References

- Fasano, A., Berti, I., Gerarduzzi, T., Not, T., Colletti, R. B., Drago, S., et al. (2003). Prevalence of celiac disease in at-risk and not-at-risk groups in the United States: A large multicenter study. *Archives of Internal Medicine*, *163*, 286–292.
- Olshansky, S. J., & Ault, A. B. (2002). The fourth stage of the epidemiologic transition: The age of delayed degenerative diseases. In F. Trovato (Ed.), *Population and society: Essential readings* (pp. 48–62). Don Mills, Ontario, Canada: Oxford University Press.
- Peters, G. L., & Larkin, R. P. (2002). *Population geography: Problems, concepts, and prospects*. Dubuque, Iowa: Kendall/Hunt Publishing Company.
- Simoons, F. J. (1981). Celiac disease as a geographic problem. In D. N. Walcher & N. Kretchmer (Eds.), *Food, nutrition and evolution: Food as an environmental factor in the genesis of human variability* (pp. 179–199). New York, USA: Masson Publishing.