Chapter 23
Food Allergy and Food Poisoning:
Toxicology on Culinary Sciences

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ABSTRACT

Taken into account data from which is considered a product not safe, estimate the safe level of a contaminant on food, for example, always have many unavoidable uncertainties. It cannot be overemphasized enough, that this also happens as in any other human activity. In most cases, we hope, to define as clearly as possible the eventual risk associated with particular conditions of exposure to a given substance in food. There are numerous toxic compounds that reside naturally in certain foods that unable these to be consumed above certain limits or even are fully prohibited in some other countries. Chapter starts with a clear explanation of differences and relationships between food allergy and food poisoning, continued with main allergens in food and main toxics. Finally, authors summarize different origins of toxins and allergens (natural from foods, from additives, pollutants and food processing).

INTRODUCTION

Nowadays food allergy is a public health problem and a matter of concern for consumers. This is firstly, due to the way that affects the quality of life of individuals who suffer them, because is often difficult to choose the right foods for diet. Keep in mind that sometimes symptoms can be serious, or even lead to death. Secondly, the importance of food allergies prevalence that has been observed in the recent years, despite the lack of concrete data to estimate the prevalence precisely is because, among other factors,

the lack of uniformity of diagnostic methods and confusion regarding other adverse reactions to foods, it is estimated that between 1 and 3% of adults and between 4 and 6% of children have food allergies (CODEX, 2006).

This chapter reviews the general characteristics of food allergies and their current impact on society, based on a literature review of published literature.

It is known as food allergy a set of adverse reactions to food, due to their ingestion, or inhalation, proven immune pathogenesis. This only occurs in some individuals, maybe after taking small amounts of food not relating them with any physiological or pathophysiological effect. The term "food allergy" is being abused, improperly applied to any adverse reaction to a food or food additive, which is in fact a toxic effect.

Cooking related toxicology has achieved a leading state in recent years, as shown a considerable amount of information on social media (TV and news) and in different scientific journals and texts (Tareke et al, 2000; Berjia et al, 2014; Kima, 2015). Regarding the origin of toxins in the culinary, we can consider four main sources: natural, accidental / allergens, industrial and process generated. Although in some cases, toxins may belong to more than one of these categories simultaneously. Natural toxins can occasionally cause problems, because they can be found unexpectedly in foods with a higher concentration than usual, or toxic species can be confused with harmless ones as often happens with some herbs and plants. Accidental intoxication generally represents the greatest risk to health, unlike the previous ones, not the quantity, frequency, type of associated food is known, or how it came to food. Sometimes it is a little known toxic or popular use abroad as Tonka beans (Dolan et al, 2010) and difficulty to diagnose poisoning. Moreover, the presence of allergens in food is extremely difficult to control, despite the most advanced legislation (European) ((UE) Nº 1169/2011) is always possible the presence of uncontrolled allergens (Alcalá AESAN 2012). Industrial poisons are foreign substances to food, added in amounts known to achieve a particular purpose, such as additives or uncontrolled such as pollutants. These compounds are not safe, even some of them are potentially toxic to most consumers; who may have symptoms with varying intensity. However if additives were not used would be very difficult to have a wide variety and quantity of food in urban areas, which has concentrated the highest percentage of the population in recent years, demanding food for subsistence. Toxic generated by the process, are the result of the transformation of food through different stages of development; from cooking, stabilization, formulation, mixing, sterilization, transportation, etc. These toxins can result from such simple processes such as roast meats, doing different polycyclic aromatic hydrocarbons, many with mutagenic and carcinogenic molecules finally generated.

BACKGROUND

Some eats are inherently poisonous while others can lead to health conditions that sometimes prove fatal. From pre-hominids time to now every time that we eat something, we are suffering a (more or less) controlled risk to death. This risk will come, from the toxicity of the food eaten or from and adverse reaction of our organism to normal food composition. Obviously the age, sex, size and previous exposition, are factor that modulate the negative action of eaten food. Modern industrial processes, as well as culinary ones, introduce new molecules in our food-stock, creating new sceneries for food poisoning.

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