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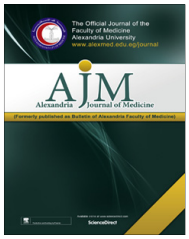

LETTER TO THE EDITOR

How to define a pharmacological or a toxic food?

Dear Editor,

Elements of our daily lives including food and beverage are more and more likely to include compounds that have pharmacological or toxic effects on the body which can be either an advantage or a disadvantage based on several factors. The active compounds that might be within the food and beverage[1] we are taking on daily basis may be of two main origins, naturally included or artificially added. Rarely, other compounds can exist without being neither natural nor artificially added, such as those due to pollutions. Such elements are defined in reference to both pharmacology and toxicology-related concepts.[2]

Natural active compounds are mainly those described by pharmacognosy[3–5] such as flavonoids, alkaloids, terpenoids among which some have shown different usages in pharmacology[6], therapy and chemistry. Persons -willing or not- to take active compounds within their daily food find themselves consuming them on a regular basis within their fruits, vegetables for example. These elements can be very helpful and have been described by some others as natural medicine which is preventive rather than curative. Indeed, an individual who selects on scientific basis both the quality and the quantity of his diets may protect himself from diseases and reduce the risk of others. One of the best examples for that is the antioxidants.[7–9] Comparatively, the active elements found within food may be toxic even when taken at a small dosage for some elements or if taken in a high dosage for other less toxic elements. Importantly, some active compounds contained within food may interact with some prescribed therapeutic treatments which represent a serious issue that we need to educate both clinicians and patients about its aspects and consequences.

The second type of active compounds is represented by those artificially added for diverse purposes such as therapeutic effects (antibiotics), athletic usage (energetic beverage) or diet effects (food for diabetics or high blood pressure patients). In fact, we may mix drugs with food to hide the taste or for specific patients in pediatrics or psychiatry for example where it is, in some case, difficult to deal with patients. Another case in which we can find added active elements in food is when those elements are added to ameliorate the food quality or to treat the animal or the plant from which the food is produced. Indeed, pesticides, insecticides and antibiotics, which are commonly used in a diversity of crops and animals, constitute a threat to the human health.

Contaminants are less common but also require attention and elements resulting from pollution can be found within the food.[10–12] Some plants used as crops have the ability to accumulate some elements within their tissues and later be consumed by humans.

The dangers or benefits that active elements, contained within food, do not only depend on the nature of the products but also on the concentration, the chemical combination (either with elements within the same food or as a result of the interaction with other foods[13] or drugs[14–16]), in addition to the individuals taking that food in term of type of diet, pathophysiological status, climate and healthcare. Further studies are required toward elucidating the full profile of the food active compounds; such investigations are strongly related to the extractions, purifications and analysis methods (for examples see[17,18]).

Conflict of interest

The author declares that there is no conflict of interest.

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Abdelaziz Ghanemi
Key Laboratory of Animal Models and Human Disease Mechanisms, Kunming Institute of Zoology Chinese Academy of Sciences, Kunming 650223, Yunnan Province, China

University of Chinese Academy of Sciences, Beijing 10049, China
E-mail address: ghanemiabdelaziz@hotmail.com

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