

Safety Assessment of Plant-based Food: Does the Shift to Alternative Dietary Pattern Pose a Threat?

Chiara Dall'Asta*, O.A. Mihalache, S. Cutroneo, L. Calcinai, B. Prandi, L. Dellafiora, T. Tedeschi

Department of Food and Drug, University of Parma, Viale delle Scienze 27/A, 43124 Parma, Italy

*Correspondence e-mail: chiara.dallasta@unipr.it

ABSTRACT:

Human and environmental health is strictly interconnected, representing the pillars of diet sustainability. In agreement with international guidelines, substantial dietary shifts are needed to move toward sustainable diets. The consumption of plant-based minimally processed food should be doubled in the coming years, replacing part of the animal source food, to lend both health and environmental benefits. Although the analysis of health and environmental impact of more sustainable diets have been widely investigated in the last years, to the best of our knowledge, there is no consensus on the impact of shifting towards more sustainable dietary models on the risk of reaching unsafe levels of specific contaminants. Contaminant levels in food are continuously monitored on the market to ensure food safety from farm to fork. However, changing the dietary patterns into more sustainable ones may lead to new health challenges referred to possible higher exposure to plant-based food contaminants. The originated emerging risk has not been fully assessed so far.

This work will give an overview of the safety assessment workflow applied to plant ingredients intended for the preparation of plant-based food alternatives. It will also present some preliminary results on the occurrence of natural contaminants, allergens and inherent antinutritional factors in legumes and bean as the major source of plant-based ingredients, and on the potential mitigation by processing.

KEYWORDS:

Natural contaminants – allergens – mycotoxins – antinutritional factors – alternative diets – novel food