

Review

Ultra-Processed Foods and Food System Sustainability: What Are the Links?

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Abstract: Global food systems are no longer sustainable for health, the environment, animal biodiversity and wellbeing, culinary traditions, socioeconomics, or small farmers. The increasing massive consumption of animal foods has been identified as a major determinant of unsustainability. However, today, the consumption of ultra-processed foods (UPFs) is also questioned. The main objective of this review is therefore to check the validity of this new hypothesis. We first identified the main ingredients/additives present in UPFs and the agricultural practices involved in their provision to agro-industrials. Overall, UPF production is analysed regarding its impacts on the environment, biodiversity, animal wellbeing, and cultural and socio-economic dimensions. Our main conclusion is that UPFs are associated with intensive agriculture/livestock and threaten all dimensions of food system sustainability due to the combination of low-cost ingredients at purchase and increased consumption worldwide. However, low-animal-calorie UPFs do not produce the highest greenhouse gas emissions (GHGEs) compared to conventional meat and dairy products. In addition, only reducing energy dense UPF intake, without substitution, might substantially reduce GHGEs. Therefore, significant improvement in food system sustainability requires urgently encouraging limiting UPF consumption to the benefit of mildly processed foods, preferably seasonal, organic, and local products.

Keywords: ultra-processed foods; food systems; sustainability; environment; animal wellbeing; socioeconomics

1. Introduction

The processing of foods is very important for ensuring food security and safety [1]. For a long time, the security and safety of food have been ensured by salting, drying, smoking, sugaring, pasteurizing, or fermenting. At present, numerous additives, namely, preservatives and antioxidants, are also used. Their use makes it possible to preserve foods during long periods of transport in trucks or boats from a production site to supply megalopolises worldwide and to help typical consumers cover, for example, seasonal gaps or if food storage at the household level is poorly managed [1]. Therefore, to feed humanity, food processing is essential. In addition, some foods require processing to be palatable (e.g., grains), safe (e.g., pasteurized milk), or available year-round (e.g., canned, dried, and frozen fruits and vegetables) [1,2]. Processed foods, especially those of recognized multinational brands [3], in developing countries have a modern image.

Importantly, improvements have been made in addressing food toxicity, notably in developed and emerging countries. However, food nutritional security has deteriorated, as seen from the triple burden of malnutrition that affects all countries worldwide, i.e., under- and over-nutrition and nutritional deficiencies [4]. In particular, over-nutrition has led to explosions in the prevalence of chronic diseases. In 2016, the World Health Organization (WHO) estimated that approximately 650 million adults were