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Pesticides: the hidden poisons on our table

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Studies on the control of pesticide residues in Brazil raise an important public health issue for the country, resulting from the prevailing social, political, and economic context. Brazil has been the world's largest consumer of pesticides since 2008 [1]. The country is hostage to an agricultural system totally dependent on the use of these products, and estimates show that Brazilians consume 7kg of pesticides per capita per year [2]. This consumption becomes particularly worrisome considering its impact on individual and collective health, widely described in the literature [3].

Studies in recent decades have shown that pesticides negatively affect the health of consumers [4,5], workers [6,7,8], and infants contaminated via breastmilk [3,9,10]. These problems represent an increase in the demand on public healthcare services due to acute poisonings and chronic diseases related to the harmful effects of pesticides. According to data from the Brazilian Information System on Diseases of Notification (SINAN), pesticide use and related poisonings increased from 2007 to 2016, ranking second among exogenous poisonings and first in case-fatality [11]. Pesticides also negatively impact the environment, through contamination of the soil and groundwater and springs and the elimination of native animal and plant species [12].

Flying in the face of this evidence, the Brazilian government has ceded to lobbying by the multinational agrochemical industry through such measures as tax exemptions, shutting down factory inspections, and flexibilization of rules for pesticide use in the country. An example of this was the authorization and release of 474 new products in the year 2019 alone [13,14]; among the fifty most widely used, 22 contain ingredients that are banned by the European Union [15].

Application of pesticides gained force mainly since the 1960s with the advent of the so-called "Green Revolution" and found a favorable scenario for expansion in Brazil due to the country's agricultural calling and huge territory. Pesticide production is a highly lucrative business, with a turnover of USD 12 billion in 2014 [16]. The use of herbicides, insecticides, and pesticides has always been paraded by agribusiness as an alternative to avoid materialization of the Malthusian hypothesis, that is, purportedly as the only way to produce enough food to feed an exponentially growing world population.

Fortunately, the production of contaminated foods is certainly not the only way to guarantee the food supply for a population with growing consumption and food demand [17]. On the contrary, in recent decades, ecologically based agriculture has proven to be the best option for restructuring the current food crop systems [18,19,20].

The massive use of a variety of chemical substances (e.g., pesticides, herbicides, and fungicides) also fails to guarantee the food supply for the entire population. Arable lands are increasingly occupied by commodity crops to produce biofuels and feed livestock in other countries such as China and European Union member countries [15]. As a result of Brazil's dependence on exportation of primary products, alongside the dismantlement of social protection policies and other neoliberal policies, Brazil shamefully slid back onto the World Hunger Map, which it had escaped since 2014 [21]. According to the *Brazilian Household Budget Survey* (POF) of 2019, 10.3 million Brazilians were suffering from severe food insecurity [22] in a country where the human right to adequate food (HRAF) is formally guaranteed by the *Federal Constitution* [23].

The state has a fundamentally important role as mediator between private interests and the population´s health, in defense of collective rights. This regulatory role is played by the Brazilian Health Regulatory Agency (Anvisa), the attributions of which include sanitary controls and the responsibility for overseeing and issuing alerts on the risks associated with the application of these products [24].

To assess whether the foods marketed in Brazil comply with the limits for pesticides allowed by the legislation, Anvisa implemented the Program for Analysis of Pesticide Residues in Food Products (PARA) [25]. The program's actions are based on risk assessment, which determines the limits of exposure considered safe for humans, but with limitations including the fact that it only assesses the acute effects and only covers a small part of the substances and foods produced in the country.

Such limitations notwithstanding, the article by Lopes & Albuquerque [26], published in this issue of CSP with data from reports by PARA, shows a high percentage of food samples with substances exceeding the acceptable limits, as well as the detection of active ingredients that are unauthorized in the country or for exclusive use in certain food crops. Such findings confirm the need to expand the debate in civil society and in grassroots organizations in order to create political strength capable of counteracting the interests of multinational corporations and agribusiness and demanding quality foods that are socially, economically, and environmentally sustainable for everyone, according to the concept of food and nutritional security (FNS) [27].

This context highlights that pesticide use relates directly to the globalization of food systems, alongside the increase in the consumption of ultra-processed foods from agribusiness, with high energy density, high in chemical substances harmful to health and associated with proven risk factors for obesity and chronic diseases. In keeping with two fundamental concepts for Brazilians, FNS and HRAF, the *Food Guide for the Brazilian Population* recommends that diet should be based on natural or minimally processed foods [28], which clashes with the country's currently hegemonic food production model. Thus, in order to fulfill the duty to promote and protect collective health, the government needs to guarantee the supply of foods free of pesticide contamination so the population will have access to the healthy eating recommended by the Food Guide. In other words, it is not enough merely to be free of hunger; it is necessary for everyone to have available and affordable quality foods.

The article describes the PARA program as an important tool to assist health inspections and focus attention on abusive pesticide use in Brazil, even though the program does not fully represent the situation of these residues in the food produced in the country. For example, the article questions the limitations of the methods used for the adoption of maximum residue limits (MRL) in foods and how these limits are much more tolerant than those set by the European Union; the article goes on to expose the economic interests involved in pesticide use in Brazil.

The recommendations in the *ABRASCO Dossier: A Warning on the Health Impacts of Pesticides* [15] emphasize the need to strengthen and expand PARA, including the assessment of other natural foods, processed foods, water, and meat products. The document also recommends banning pesticides that are prohibited in other countries, since they pose an unacceptable risk to human health and the environment. However, how is it possible to achieve progress, including raising society´s awareness on the consequences of abusive pesticide use and focusing attention on successful experiences based on sustainable food production, when we are experiencing the dismantlement of public policies and constant attacks on civil society by the current Brazilian government?

The publication of data from scientific studies, such as those presented in this edition, reaffirms the role of science, socially committed to the production of knowledge that responds to problems faced by the population. Such action is especially relevant because many of these problems result from intentional denial of their existence by the respective companies, who are more interested in hiding the problems to protect their profits. The dissemination of results from such studies should foster debate in the scientific community and social movements on longstanding, still-unresolved issues, thereby contributing to the elaboration of public policies that promote health and prevent avoidable diseases, in the defense of a more just and democratic society.

Contributors

M. T. B. A. Frota wrote the article. C. E. Siqueira collaborated in the writing and reviewed the article.

Additional informations

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