Monitoring of pesticide and veterinary drug residues in food

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Sessão do trabalho: Resíduos de agrotóxicos e medicamentos veterinários
Residues of pesticides and veterinary drugs

Resumo: Pesticides have a very important role in the development of modern agriculture, increasing food productivity. The application of pesticides can occur during production and storage, controlling fungi, insects, and weeds that can decrease the quality of the food and cause economic losses. Therefore, the application of pesticides is essential to preserve the quality of the food and prolong its shelf life. Veterinary drugs are widely employed to treat or prevent bacterial infections. Prolonged exposure to pesticide and veterinary drug residues has adverse effects on human health, such as allergic reactions and propagation of bacteria resistant to antibiotics.

There are different regulatory agencies at the levels of pesticide and veterinary drug residues in food and feed such as the European Commission (EU- European Union), Food and Drug Administration (FDA- United States), Codex Alimentarius International Food Standards (FAO- Food and Agriculture Organization of the United Nations), National Health Surveillance Agency (Anvisa- Brazil). These agencies are responsible for organizing monitoring programs and generating data for the toxicological evaluation of maximum residue limits. Moreover, they provide analyses of the food consumed by the population.

Monitoring food samples for analysis of residues and contaminants was not impacted by the Covid-19 pandemic. According to data provided by the laboratory, during the year of 2020 it was analyzed by the QuEChERS (Quick, Easy, Cheap, Effective, Rugged and Safe) methodology a total of 10946 samples for pesticides and during 2021 a total of 13467 samples and regarding veterinary drugs the numbers were 15239 in 2020 and 15566 samples in 2021 analyzed by HPLC-MS/MS, showing that monitoring was not interrupted and the industry increased the level of samples for controlling.

Thus, the determination of residues in food is important due to the risk that these compounds may pose to human health, in addition to their persistence in the environment and tendency to bioaccumulation. Public and private laboratories have been working on the development of efficient and reliable analytical methods, capable of identifying and quantifying pesticides in complex samples, guaranteeing food safety for the population.

Palavras-chave: Pesticide. Veterinary drug residues. Food safety.