

SUMMARY

The research aimed to assess the contamination of different foods with PFAS in Hungary, focusing on qualitative identification and quantitative analysis of PFAS compounds, as well as the evaluation of surrogate recovery percentages to ensure the accuracy and reliability of analytical methods.

The study effectively identified PFBS in spinach using ultrahigh-pressure liquid chromatography-tandem mass spectrometry (UHPLC-MS/MS), which is a European standard and high-performance equipment and it is nearly suitable for assessment demonstrating the effectiveness of the method. By identifying PFAS chemicals in food samples, this approach helped set the stage for additional analysis. The study used calibration curves and surrogate standard approaches to quantify the levels of PFAS contamination in various food matrices. Using calibration curves, the quantities of PFBS in the tested samples were determined; the sample with the highest content was spinach. Additionally, the dependability and accuracy of the analytical method were assessed using surrogate standards, demonstrating that the recovery percentages of various food samples and surrogates varied.

To reduce potential health hazards, it is critical to address PFAS contamination in the food supply chain. This is highlighted by the detection of PFBS in food samples. Different food kinds of food matrices were assessed and PFBS was detected in Spinach, which highlights the complexity of PFAS contamination and needs more research into the pathways and sources of contamination. To protect consumer safety, regulatory bodies are recommended to set standards for PFAS levels in food products. To determine precise sources of contamination and assess the health hazards connected to PFAS exposure, more study is necessary. Also to improve measurement accuracy and reliability, optimizing analytical techniques for PFAS quantification in food samples should be given top priority.

To safeguard food safety and the public's health, the study's conclusion highlights the need to continuously assess for PFAS contamination in food samples. Accurately assessing PFAS levels and putting targeted actions in place can help to protect the integrity of the food supply chain and reduce the health concerns that could arise from exposure to PFAS.

The research offers important insights into screening of PFAS contamination in food matrices in Hungary through a careful approach that includes qualitative and quantitative analyses, as well as an assessment of surrogate recovery percentages. This shows the way for future efforts to mitigate risks and ensure consumer safety.