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Assessing Trifluoroacetic Acid Risks in Food Safety

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Abstract

Trifluoroacetic acid (TFA) is an ultra-persistent, highly mobile environmental contaminant that has become a ubiquitous presence in the global hydrological cycle. As a terminal degradation product of various fluorinated substances, TFA resists conventional water treatment and natural environmental breakdown, leading to its accumulation in agricultural systems and the human food chain [1,2].

European Food Safety Authority (EFSA)'s recent assessment focused on the potential long-term risks of TFA to thyroid, liver, and developmental health, highlighting the necessity for thorough analysis of chronic dietary exposure. This review provides a Singapore-specific dietary exposure assessment to evaluate whether current intake levels are within the EFSA-derived Acceptable Daily Intake. Proactive surveillance is critical for understanding the prevalence and long-term health impact of TFA. This enables the development of evidence-based risk management measures to safeguard food safety and public health.

References

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[2] H. P. H. Arp, et al., “The Global Threat from the Irreversible Accumulation of Trifluoroacetic Acid (TFA)”, Environ. Sci. Technol., Vol. 58, No. 45, pp. 19925-19935, 2024.