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Toxics Link Study Finds Raw Turmeric from Farms Within Safe Lead Limits, Points to Post-Harvest Contamination as Likely Source

New Delhi, July 30, 2026: A new study by Toxics Link has found that raw turmeric collected directly from farms across six Indian states contains low levels of lead, well within the maximum permissible limit prescribed by the Food Safety and Standards Authority of India (FSSAI). The findings suggest that the lead concentrations reported in turmeric powder sold in markets are unlikely to originate at the cultivation stage and instead point towards contamination during post-harvest processing, handling, or deliberate adulteration.

The report, "**Lead in Turmeric**," analysed 13 raw turmeric rhizome samples collected directly from farms in Maharashtra, Telangana, Tamil Nadu, Odisha, Karnataka, and Madhya Pradesh. All samples were tested at an NABL-accredited laboratory using Inductively Coupled Plasma Mass Spectrometry (ICP-MS). Lead concentrations ranged from below the limit of quantification (LOQ-0.05 mg/kg) to 1.87 mg/kg, significantly below the FSSAI limit of 10 mg/kg for turmeric.

The findings provide important evidence that naturally cultivated turmeric generally contains only background levels of lead. This reinforces growing scientific evidence that the high levels of lead detected in commercially available turmeric powder are more likely introduced during processing and marketing, particularly through adulteration with lead chromate to enhance colour and market value.

Lead is a potent neurotoxin with no known safe blood lead level in children. It can impair brain development, reduce IQ, cause learning disabilities, behavioural disorders, kidney damage, cardiovascular disease, and reproductive disorders. Because turmeric is consumed daily in millions of Indian households and is widely used in traditional medicine and religious practices, contamination represents a significant public health concern.

Recent international studies have documented dangerously high concentrations of lead in turmeric sold in South Asian markets, with some samples containing multiple times higher lead concentrations - in the form of lead chromate- than the permissible level.. Toxics Link's study clearly shows that lead contamination of turmeric occurs elsewhere - down the supply chain- and not at the agricultural producer's end.

Commenting on the findings, **Mr. Satish Sinha, Associate Director, Toxics Link**, said:

"Our findings indicate that turmeric cultivated on farms generally complies with existing food safety standards for lead. The evidence points towards contamination

occurring after harvest, making it imperative to strengthen surveillance and regulatory oversight across processing, packaging, and marketing stages. Protecting consumers requires greater traceability throughout the supply chain and strict enforcement against food adulteration."

The report notes that while environmental contamination from soil, irrigation water, industrial emissions, and agricultural inputs do not appear to contribute significantly to lead levels in raw turmeric sampled in this study. Instead, the evidence suggests that post-harvest practices require urgent investigation.

Based on the study findings, Toxics Link recommends that the Food Safety and Standards Authority of India (FSSAI) and state food safety authorities strengthen routine monitoring of turmeric and other spices available in retail and wholesale markets, improve traceability across the supply chain, conduct targeted inspections of processing and packaging units, and take stringent action against intentional adulteration.

The report also recommends larger multi-state studies incorporating soil, irrigation water, agricultural inputs, and processing facilities to better understand contamination pathways and strengthen food safety governance.

As India is the world's largest producer, consumer, and exporter of turmeric, ensuring the integrity of its supply chain is essential not only for protecting public health but also for safeguarding consumer confidence and maintaining India's reputation in international spice markets.

About Toxics Link

Toxics Link is an environmental research and advocacy organisation working to promote environmental justice and reduce exposure to toxic pollutants. Since 1996, the organisation has undertaken research, policy advocacy, and awareness initiatives on hazardous chemicals, waste management, heavy metals, and environmental health, contributing to evidence-based policy reforms and improved environmental governance.

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