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## OTHER INFORMATION

## KEYWORDS

anaerobic, biodegradation, CTFE, Cl-  
PFCA, hydrolytic dechlorination,  
microbial dechlorination, PFAS,  
wastewater treatment

**CATEGORIZED AS**

- ▶ **Biotechnology**
  - ▶ Other
- ▶ **Environment**
  - ▶ Remediation

## 2024-706-0

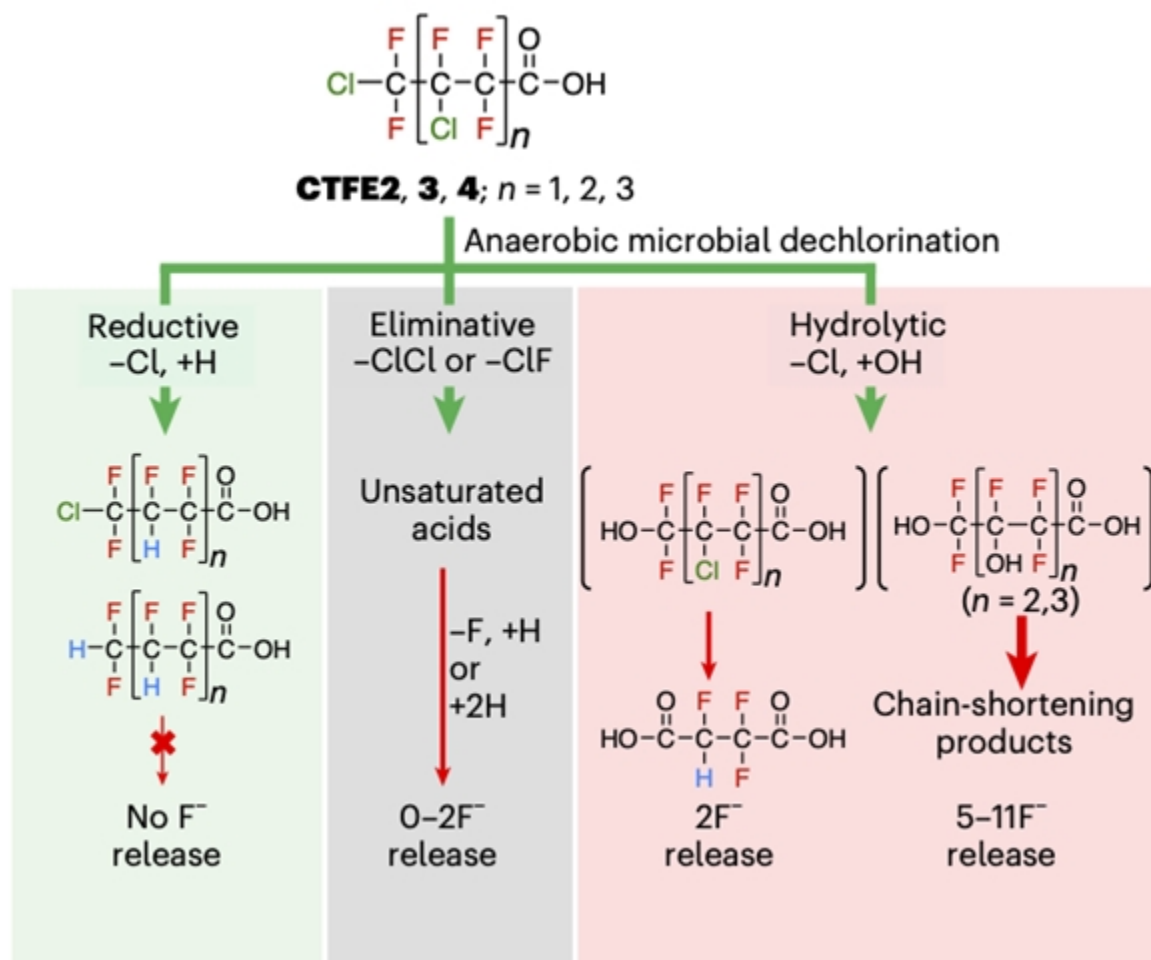
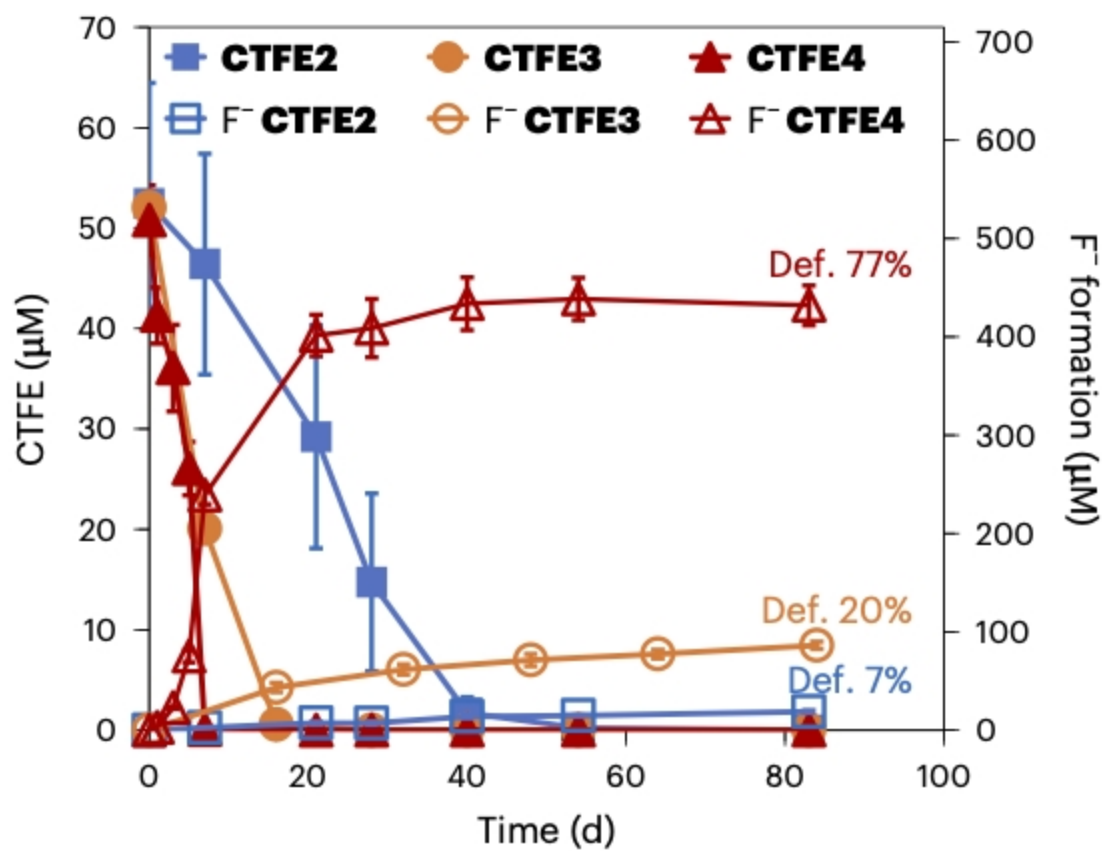


Image showing the biotransformation pathways. Green arrows represent dechlorinating reactions. Red arrows represent defluorinating reactions. The thickness of the red arrows represents the number of fluoride ions ( $F^-$ ) released - a metric for the extent of breakdown of carbon-fluorine (C-F) bonds.



Graph showing the parent compound decay and F<sup>-</sup> formation. The data are represented as mean values. The error bars represent the standard deviation from n=3 replicate experiments.

ADVANTAGES

**Cost-effective bioremediation** - Sequential anaerobic-aerobic bioreactors, commonly used in wastewater treatment, could be adapted for a cost-effective cleanup of impacted environments.

**Designing safer alternatives** - Incorporating chlorine substitutions in PFAS molecules could offer a viable strategy for designing new PFAS substances with similar functions but a significantly reduced environmental footprint.

**Understanding environmental fate** - the technology can be used to predict the behavior and persistence of Cl-PFAS in anaerobic environments.

**Enhanced PFAS source tracking** - the technology developed can aid in tracking the origin and fate of PFAS in the environment.

APPLICATIONS

- Cost-effective remediation of PFAS contamination.
- Design of safer PFAS alternatives.

INVENTOR INFORMATION

Please review [all inventions by Prof. Men and her team](#) at UCR.

Please visit [Prof. Men's group website](#) to learn more about their research.

RELATED MATERIALS

- [Substantial defluorination of polychlorofluorocarboxylic acids triggered by anaerobic microbial hydrolytic dechlorination](#)

PATENT STATUS

Patent Pending

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