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Metronidazole removal by means of a combined system coupling an electro-Fenton process and a conventional biological treatment: by-products monitoring and performance enhancement

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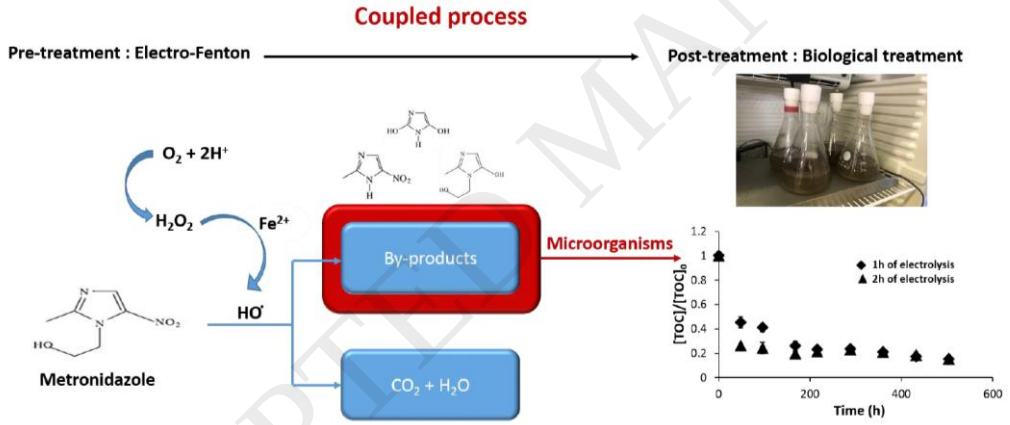
Graphical abstract



Highlights :

- Biological treatment of MTZ led to 22% of degradation after 21 days of treatment
- The application of EF led to total MTZ degradation with low level of mineralization
- The biodegradability increased from 0 to 0.46 for the BOD5 on COD ratio
- By-products were identified by UPLC-MS/MS and a degradation pathway was proposed.
- Overall removal yield of the MTZ effluent during the combined process was 87.4%