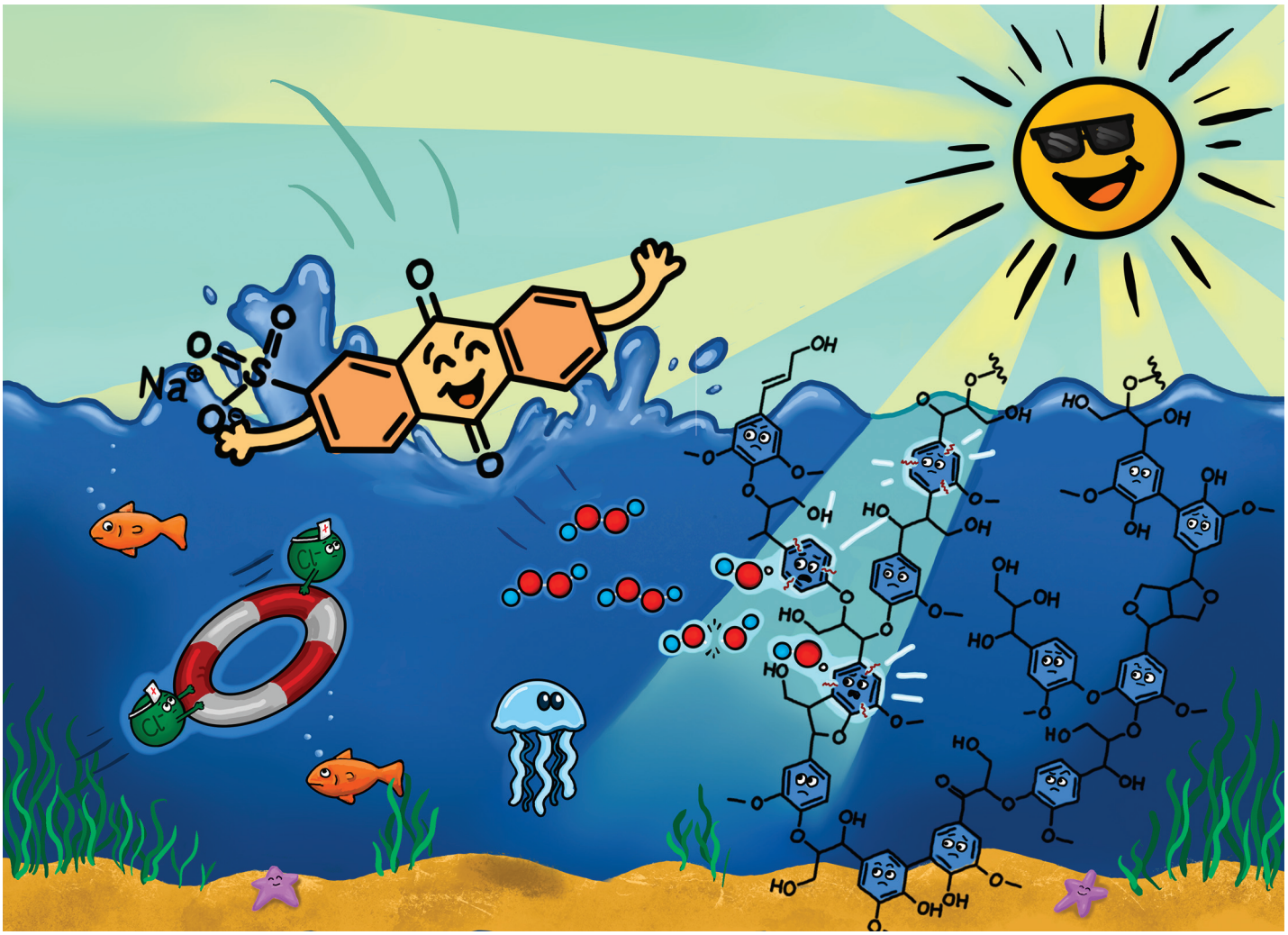

Showcasing research from Dr. Bruno Manzolli Rodrigues's laboratory, Bergische Universität Wuppertal, Wuppertal, Germany.

Swimming upstream – photocatalytic depolymerization of lignosulfonate in seawater

This study introduces a sustainable photocatalytic strategy to valorize lignosulfonate, a major lignin derivative from the pulp and paper industry. Using sodium anthraquinone-2-sulfonate (AQ2S), a non-toxic, water-soluble photocatalyst, efficient depolymerization is achieved under UV light at room temperature and ambient pressure. The process proceeds in saline media and even untreated seawater, without organic solvents or hazardous additives. Salinity is shown to stabilize AQ2S, enabling prolonged activity and yielding low-molecular-weight fragments. This work highlights seawater as a green medium and offers a scalable path for lignin valorization in biorefineries.

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Artwork created and colored by Nele Petersen without the use of AI tools.

As featured in:

See Girolamo Casella, Adam Slabon, Bruno V. M. Rodrigues *et al.*, *Green Chem.*, 2025, **27**, 12187.

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