Research Showcase of Dr Parvez Mahbub
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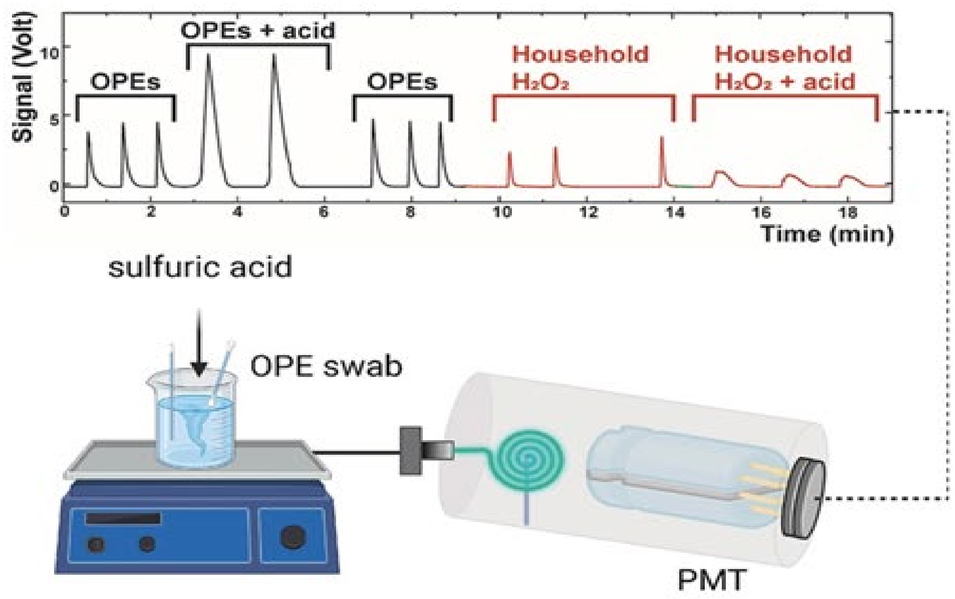
Rapid and portable screening of explosives

Current Capability

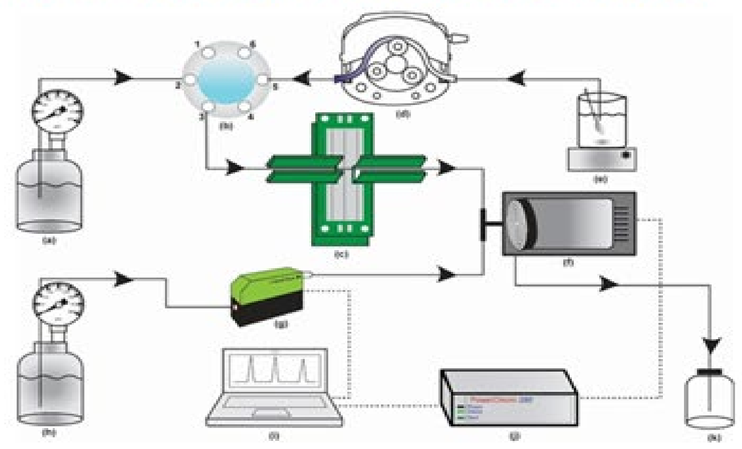
Rapid screening and selective detection of Organic Peroxide Explosive traces



Mahbub et al. 2023; https://doi.org/10.1016/j.aca.2023.341156

Towards Future Capability

Rapid screening and selective detection of Wide Range of Explosive traces, **OPEs, cyclic nitramines and nitroaromatics**



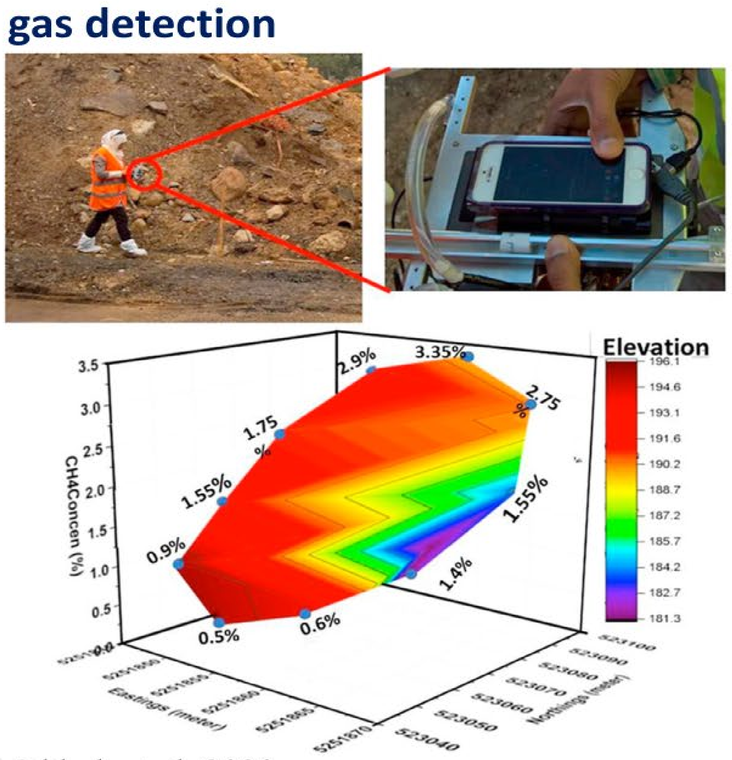
Mahbub et al. 2025 (in progress)

Acknowledgements :Fazria Tanjum (UNSW), Chowdhury Kamrul Hasan (RMIT, Melbourne), David Rudd (Monash University), Mirek Macka (Brno University of Technology) Parvez Mahbub (UNSW)

Hazardous gas detection in indoor and outdoor

Current Capability

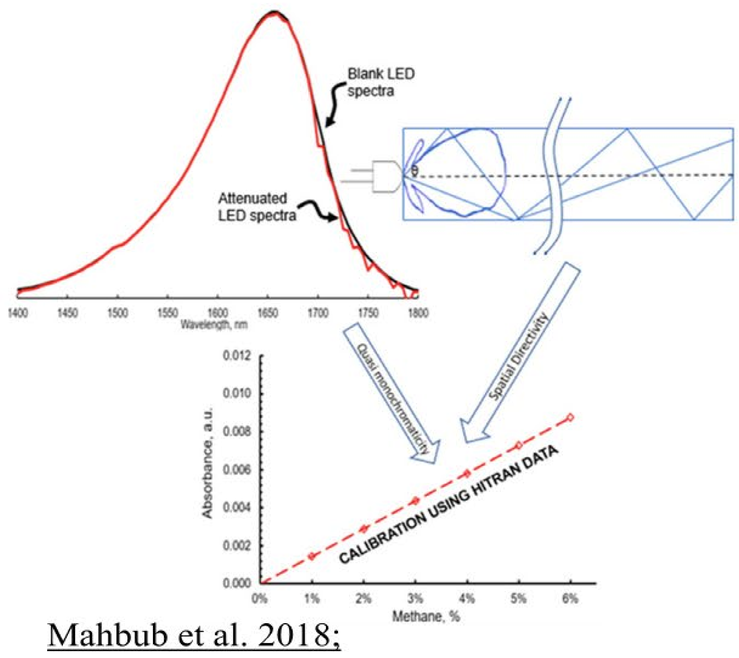
Portable and low-cost solution of methane gas detection



Mahbub et al. 2020;
https://doi.org/10.1016/j.talanta.2020.121144

Towards Future Capability

Chemometric Approach to Rapid Detection of Multiple Toxic Gases with a Miniature Device



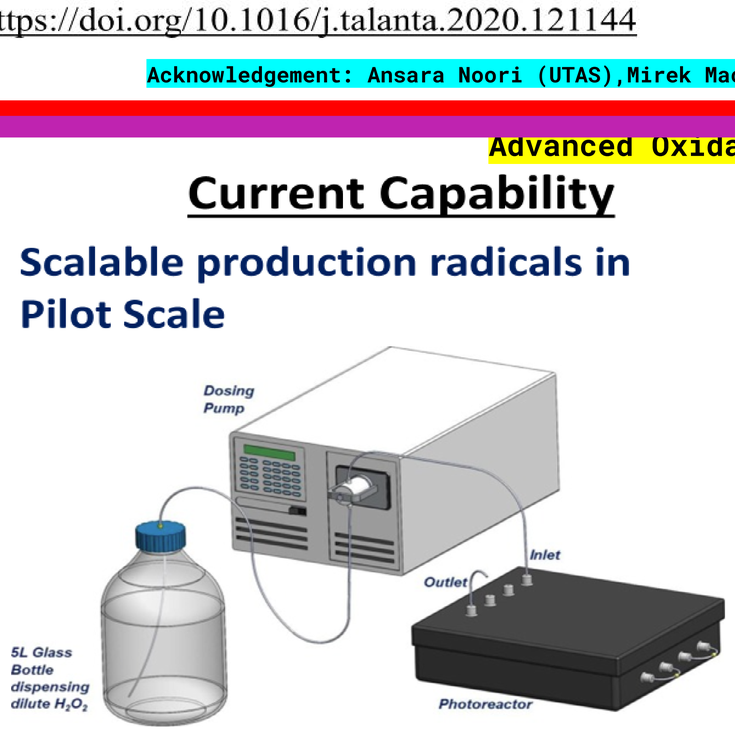
Mahbub et al. 2018;
https://doi.org/10.1021/acs.analchem.8b01295

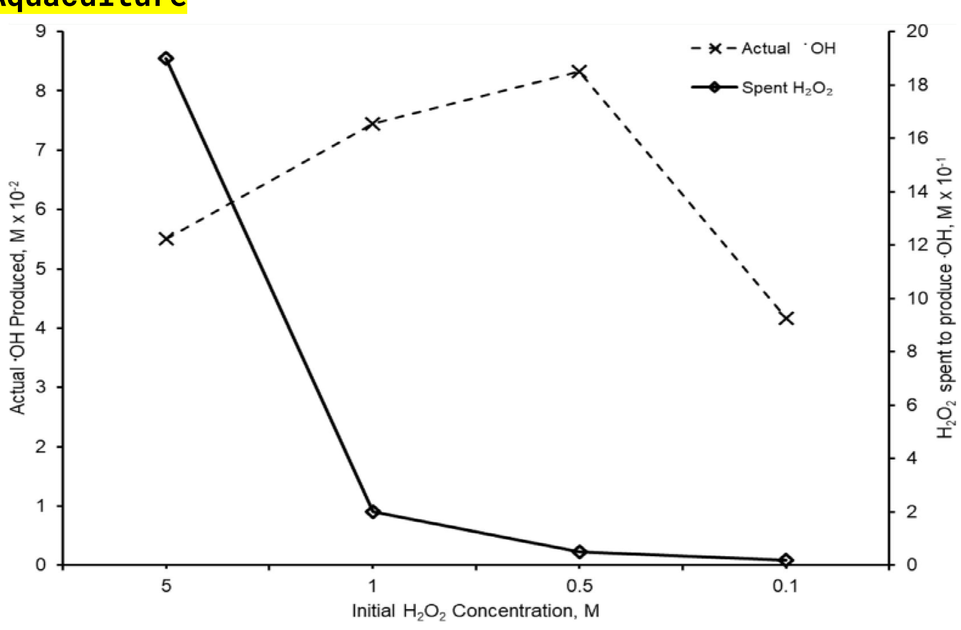
Acknowledgement: Ansara Noori (UTAS),Mirek Macka (Brno University of Technology), Parvez Mahbub (UNSW)

Advanced Oxidation for Aquaculture

Current Capability

Scalable production radicals in Pilot Scale





Mahbub et al. 2022; https://doi.org/10.1016/j.cej.2021.131762

Towards Future Capability

Developing Point-of-Care Delivery Systems for hydroxyl, peroxyl, sulfates as well as strong oxidisers such as ozone, singlet oxygen and hydrogen peroxides **for their Large-scale Industrial Use**

advanced inert micro/mesoporous structures (e.g., MOFs, Cu-SBA-15, MCM-41 and so on) to be used as delivery mechanisms

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