



Fluorescence based monitoring tool for disinfection byproducts

Nashita Moona, Mia Bondelind, Kathleen Murphy, Thomas Pettersson
Olof Bergstedt

DRICKS
Chalmers Tekniska Högskola



Water Disinfection

- ◆ ***Purpose of disinfection:***

- *To make Drinking water free of any disease causing bacteria and microbes.*

DBPs (Disinfection By Products)

◆ Reaction of Chlorine with
Organics in water and
wastewater

◆ $\text{HOCl} + \text{NOM}$

Oxidized NOM

Chlorinated Organics

TOX

THM

HAA

} Carcinogens



Reducing DBP formation

**Removing
Precursor**

**Source
water with
Lower DBP-
FP**

**Using
Alternate
Disinfection
Strategies**

**Lowering
the
Chlorine
Dose
and/or
Residual**

**Changing
the
Point(s) of
Chlorine
Application**

**Ensuring
Water Tank
Turnover**



Research focus

Effective treatment

process optimization strategies to *minimize*

DBP formation

(for a Swedish perspective)

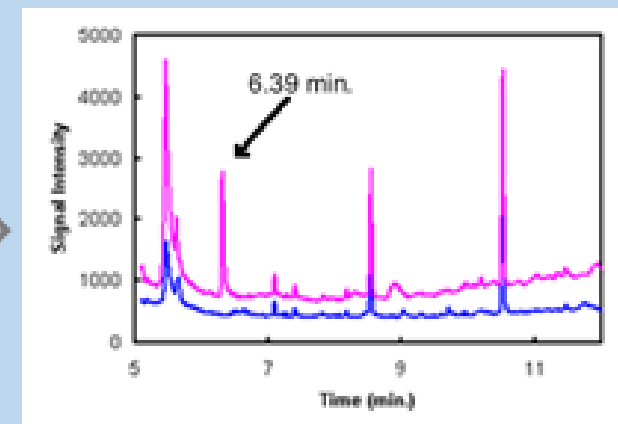
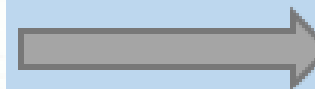
DBP monitoring



Gas chromatograph

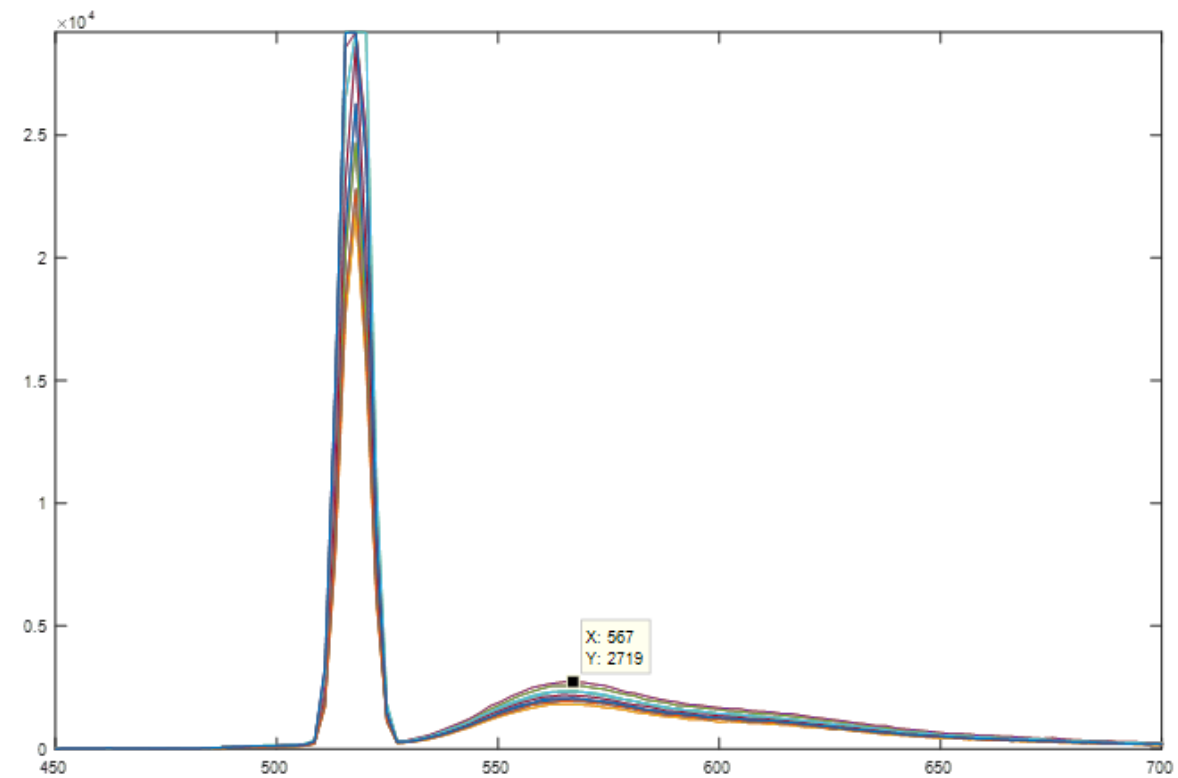
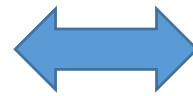
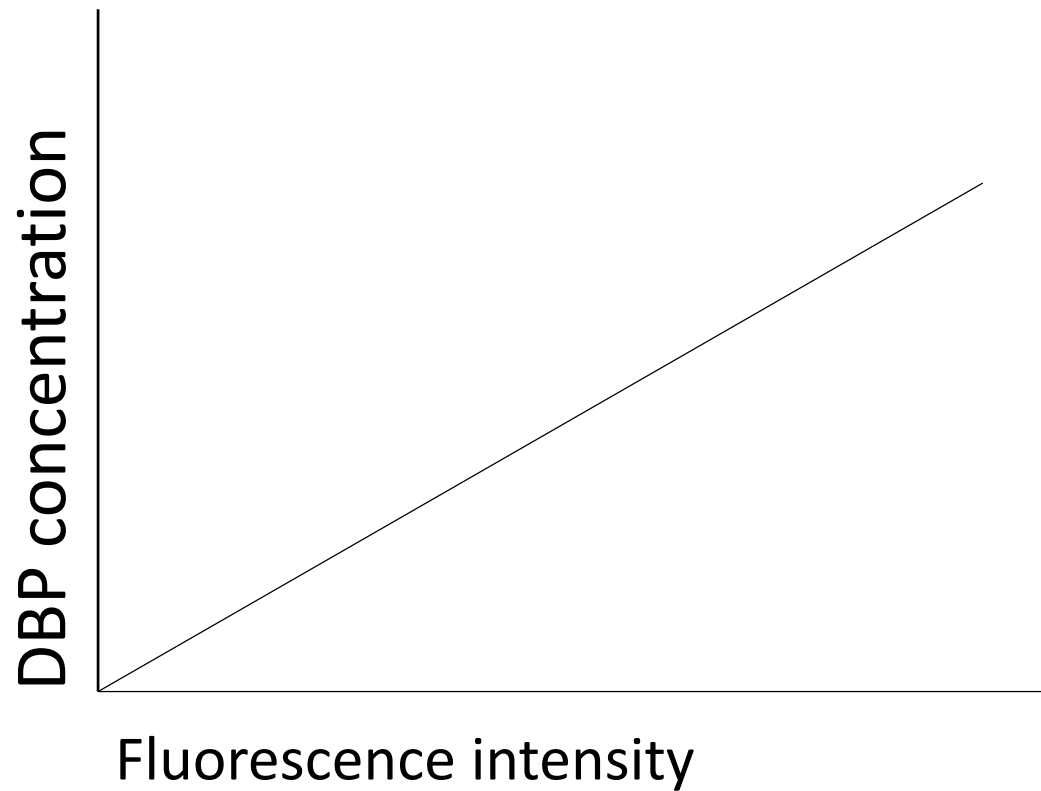


Experienced lab personal

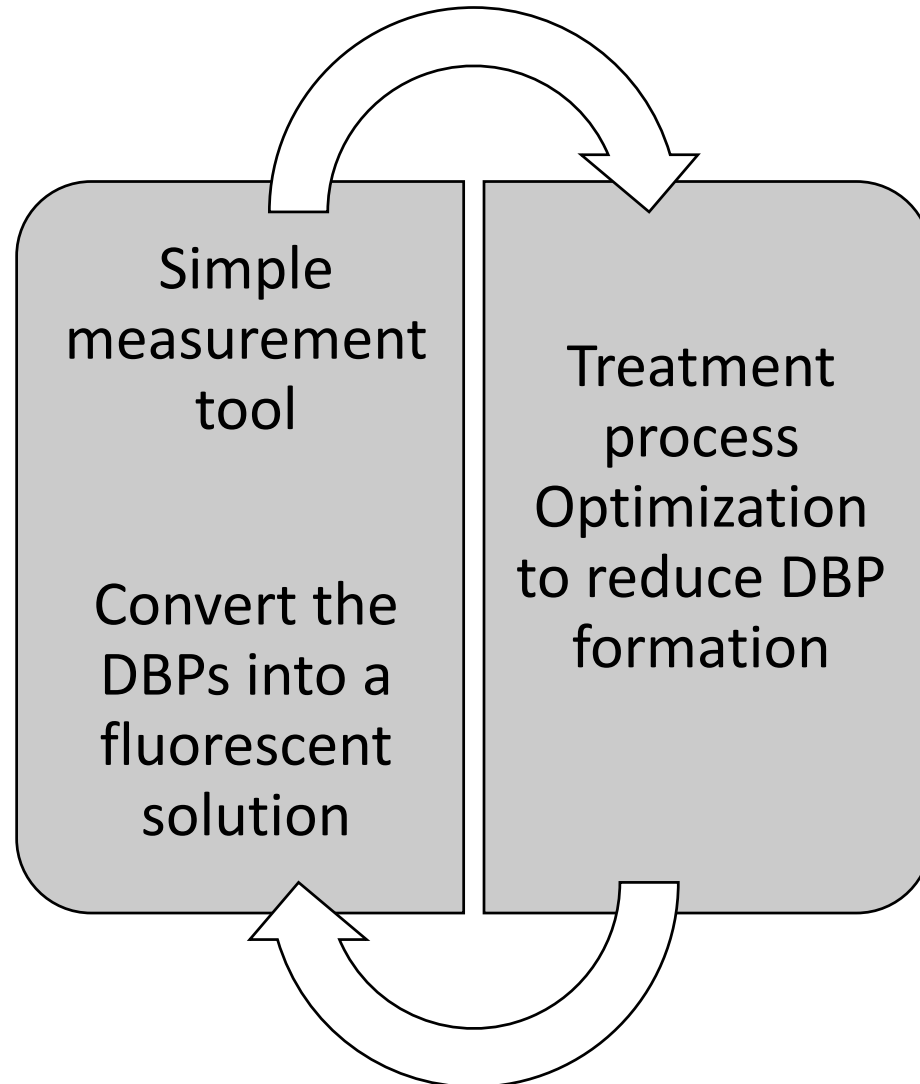


Disinfection by product measurement

Fluorescence based measurement technique



Fluorescence based measurement technique





Thank you