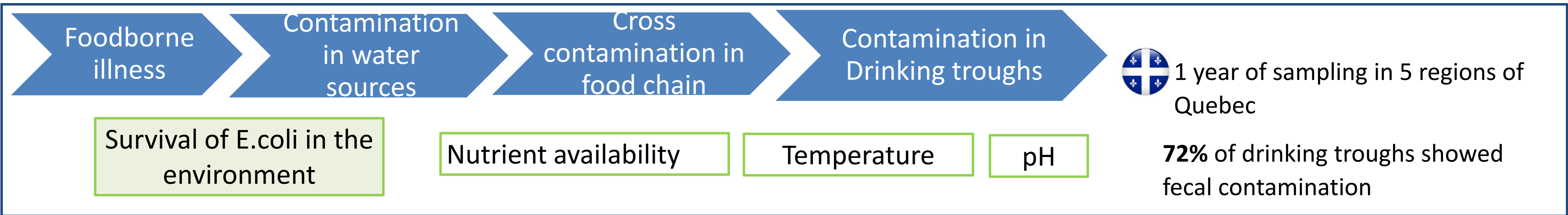
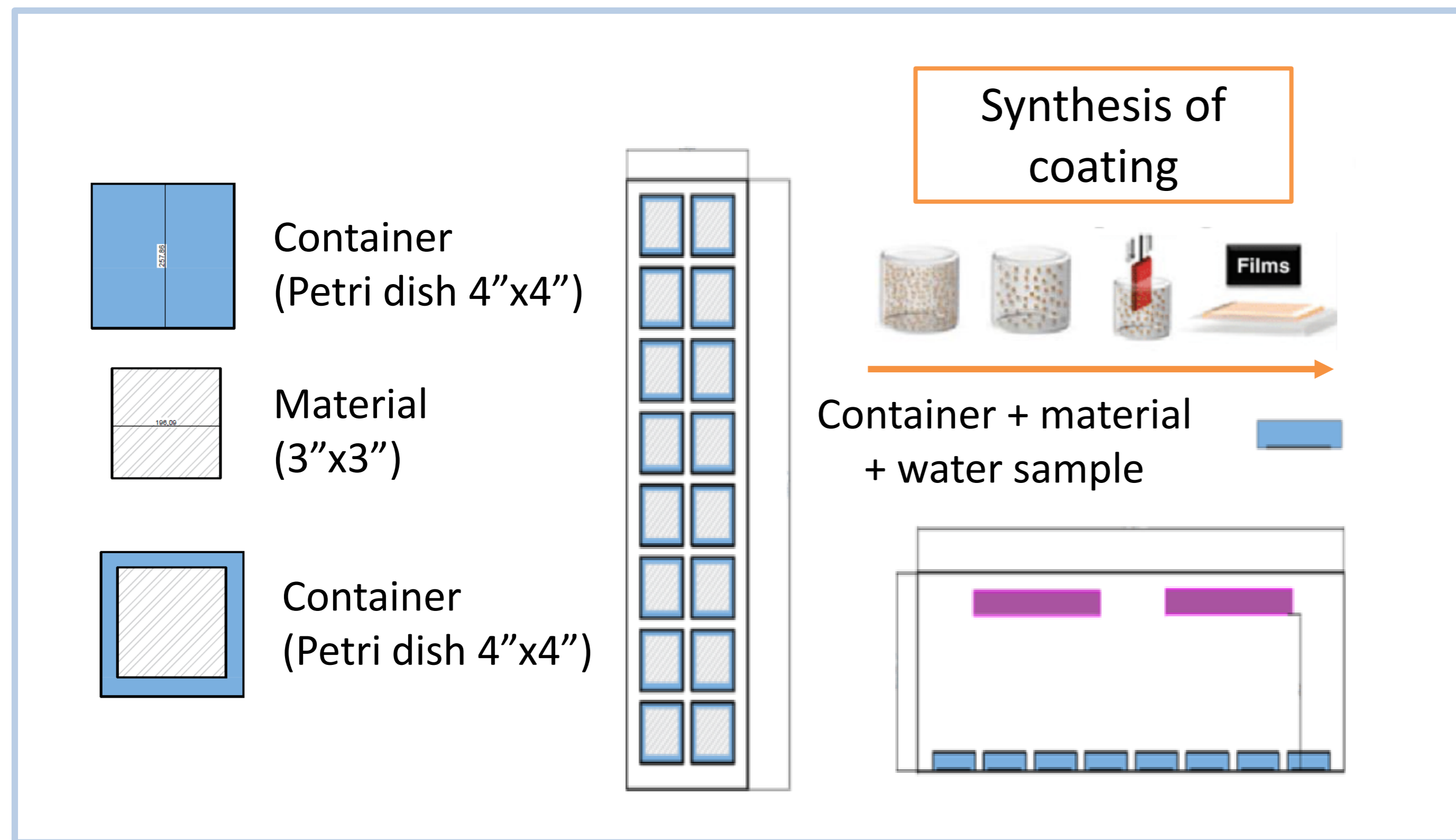


# Influence of design materials and water parameters on the microbiological quality of drinking troughs in cow-calf farms



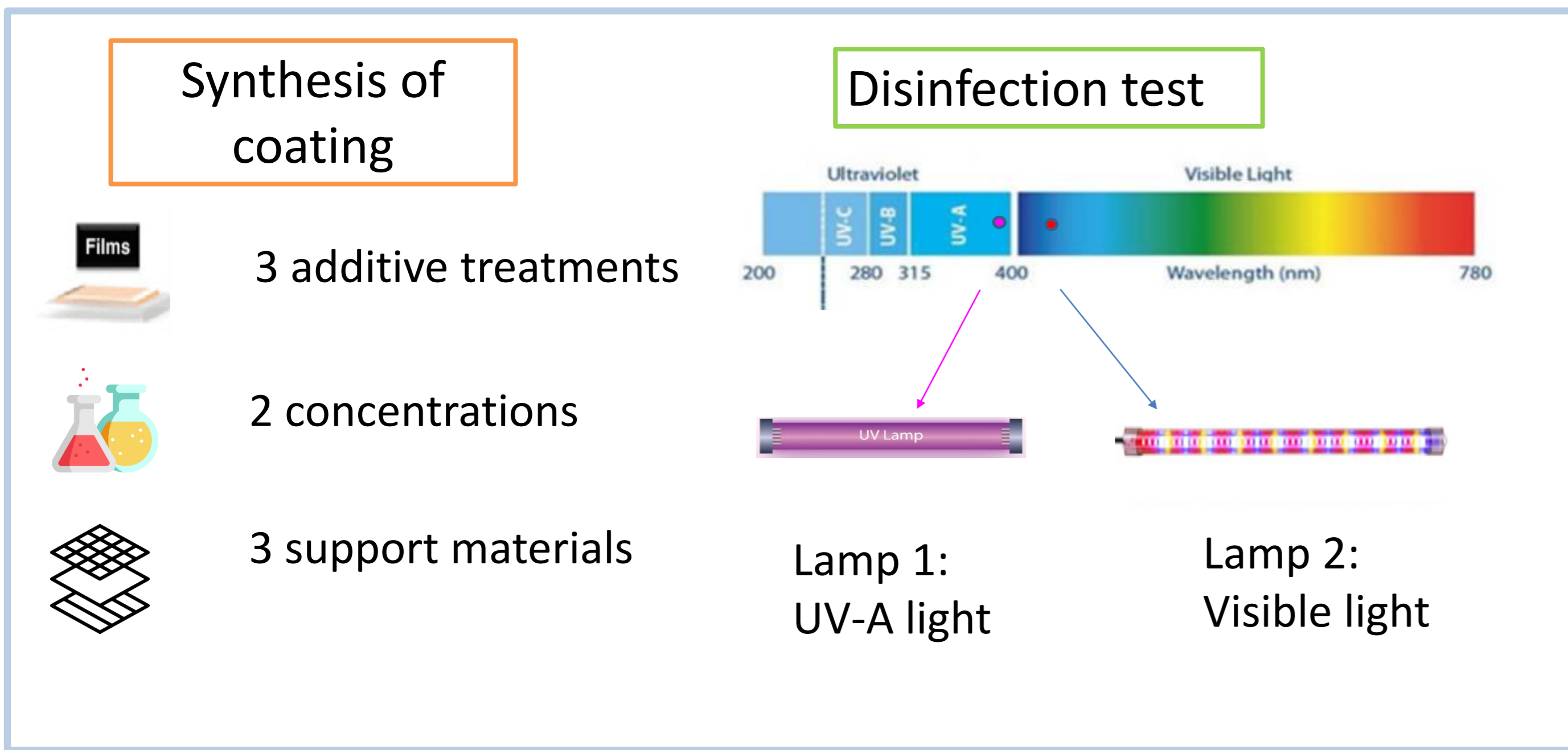
1 To evaluate the feasibility of using high density polyethylene (HDPE) as a support material for the immobilization of coating.



Variable	Item	Description
Material	P	Polyethylene (HDPE)
	NP	Glass substrate
	BP	Non-coated polyethylene
	BNP	Non-coated glass substrate
Zeolite	TiO2	TiO2
	TiO2-Z	TiO2 doped with zeolite
Temperature	50, 150	heat treatment temperature

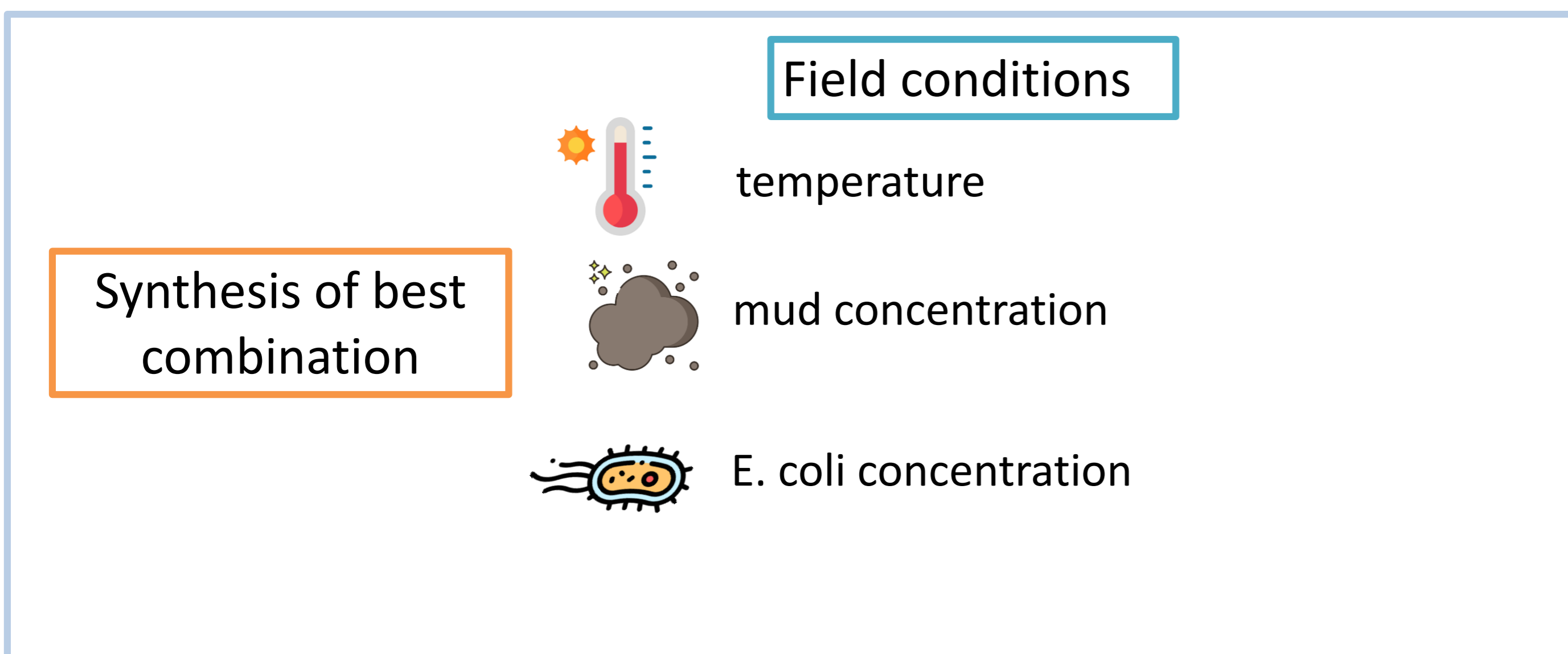
Disinfection test

2 To evaluate the efficiency of coatings immobilized on support materials under the influence of 2 types of lamps in the microbiological disinfection of water.



Variable	Item
Additive	Fe - TiO2
	Ag - TiO2
	- TiO2
Concentration	Low concentration
	High concentration
Support material	Stainless steel
	glass substrate
	Polyethylene
Blank	Non coated stainless steel
	Non coated glass substrate
	Non coated polyethylene

3 To identify the influence of design materials (coating + support material) and water parameters with simulated field conditions (temperature, mud concentration, E. coli concentration) in water disinfection.



Variable	Description
Design material (coating + support material)	Best combination material 1 (stainless steel) + coating
	Best combination material 2 (polyethylene / glass substrate) + coating
	Material 1 uncoated
	Material 2 uncoated
Mud concentration	Zero concentration
	High concentration
E. Coli concentration	Low E.coli concentration
	High E.coli concentration

## Potential benefits of the project for the agricultural

- Coating design on a typical drinking trough material
- Influence of water parameters on microbiological contamination
- Potential treatment to reduce E.coli in Drinking trough and possible dissemination to the environment