SUPPLEMENTARY MATERIAL

1.- NITRINET model parameters

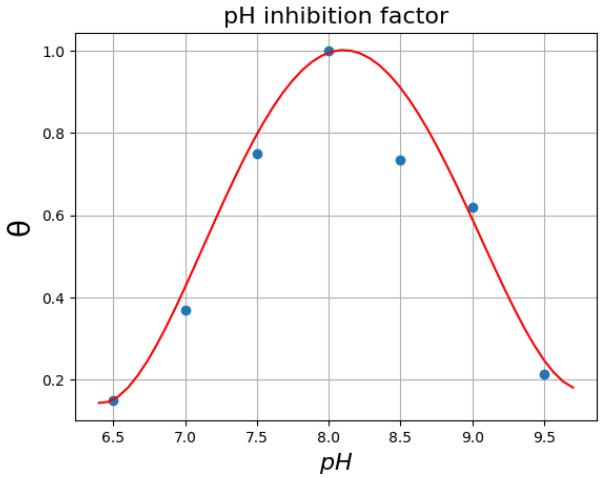

Figure 1. pH inhibition factor curve (adapted from Grunditz and Dalhammar, 2001).

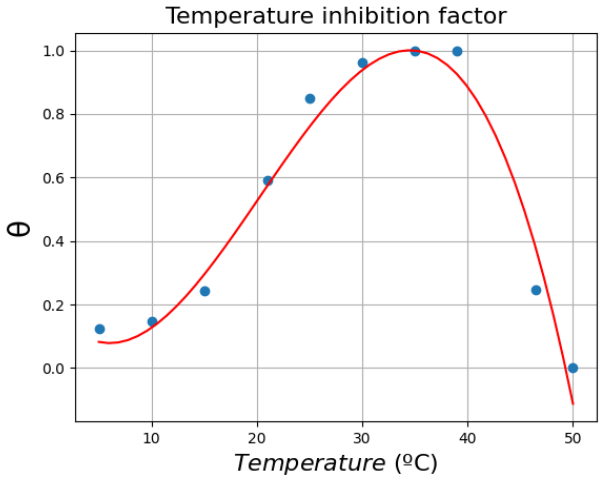

Figure 2. Temperature inhibition factor curve (adapted from Grunditz and Dalhammar, 2001).

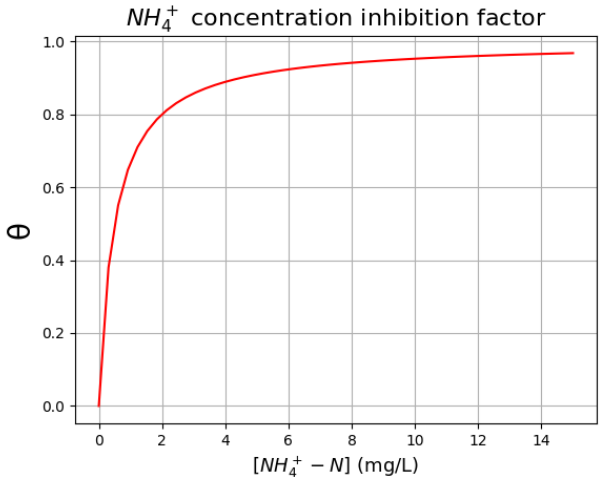

Figure 3. Substrate concentration inhibition factor curve (Pambrun et al., 2006).

2.- Hydraulic characterisation

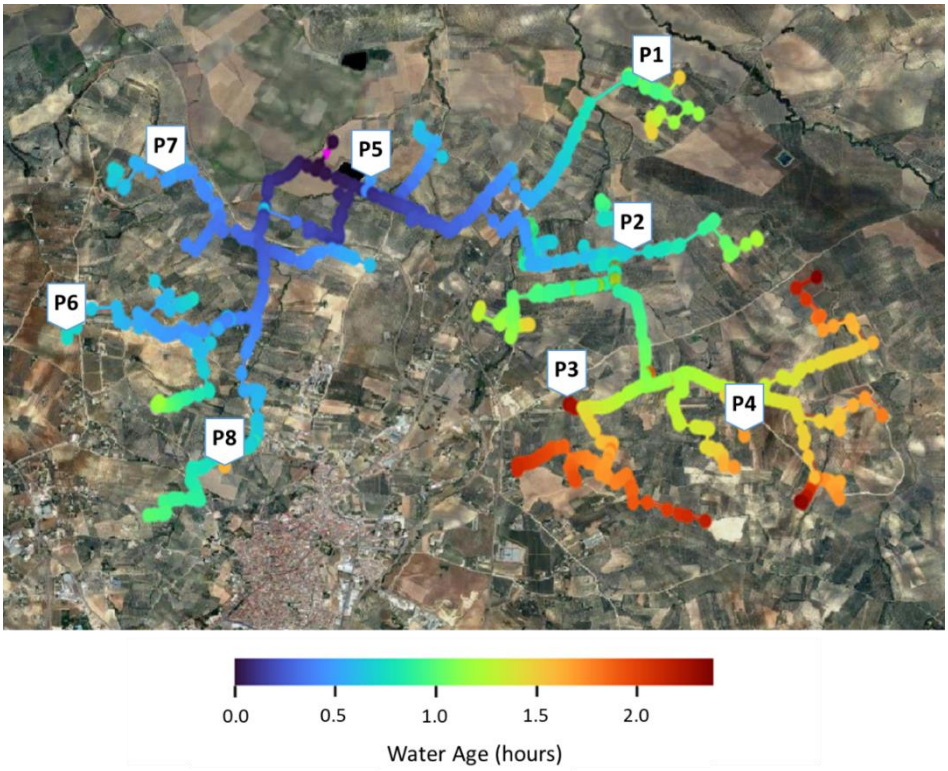

Figure 4. Selected plots and water travel time in the distribution network.

Table 1. Hydraulic characteristics of the selected plots.

Sampling point	Water travel time (h)	Pipe length (m)	Mean velocity ($m \cdot s^{-1}$)	Pipe surface (m^2)
P1	1	4105	1.2	1254
P2	0.68	3416	1.4	2195
P3	2.2	6651	0.8	3848
P4	1.54	6006	1.1	3645
P5	0.48	1452	0.8	410
P6	0.73	3814	1.5	2028
P7	0.48	2335	1.4	1122
P8	1.46	3452	0.7	1563

3.- Correlation test

Table 2. Spearman's rank correlation test.

	ΔNH_4^+-N	**ΔNO_3^--N**	**T**	**ΔpH**	**Travel time**	**Pipe length**	**Pipe surface**	**Mean velocity**
ΔNH_4^+-N ($mg \cdot L^{-1}$)	1							
ΔNO_3^--N ($mg \cdot L^{-1}$)	-0.75***	1						
T (ºC)	-0.31**	0.30**	1					
ΔpH	0.64***	-0.66***	-0.51***	1				
Travel time (h)	-0.42***	0.23*	0.07	-0.35**	1			
Pipe length (m)	-0.37***	0.24*	0.01	-0.27*	0.95***	1		
Pipe Surface (m^2)	-0.32**	0.26*	0.00	-0.27*	0.81***	0.82***	1	
Mean velocity ($m \cdot s^{-1}$)	0.24*	-0.02	-0.10	0.28*	-0.32**	-0.11	0.05	1

*: significant correlation at $p < 0.05$; **: significant correlation at $p < 0.01$; ***: significant correlation at $p < 0.001$.

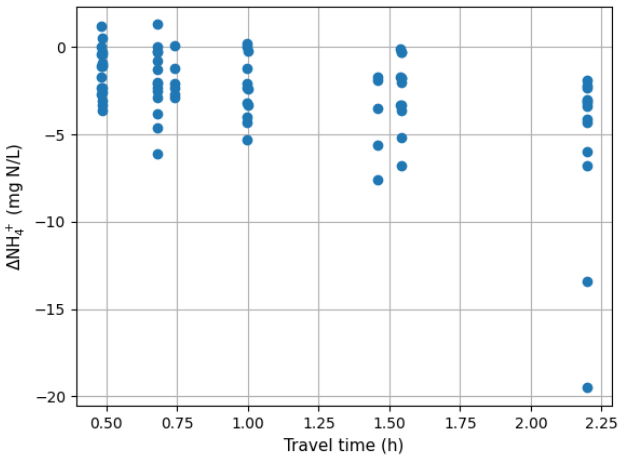

Figure 5. Correlation between ammonia oxidation and water travel time.

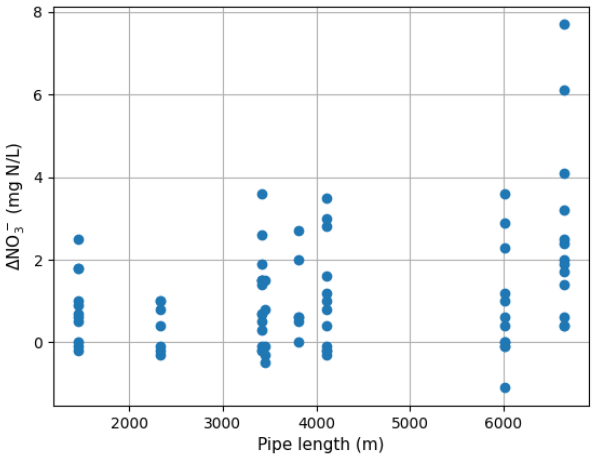

Figure 6. Correlation between nitrate production and pipe length.

4.- Calibration of model parameters

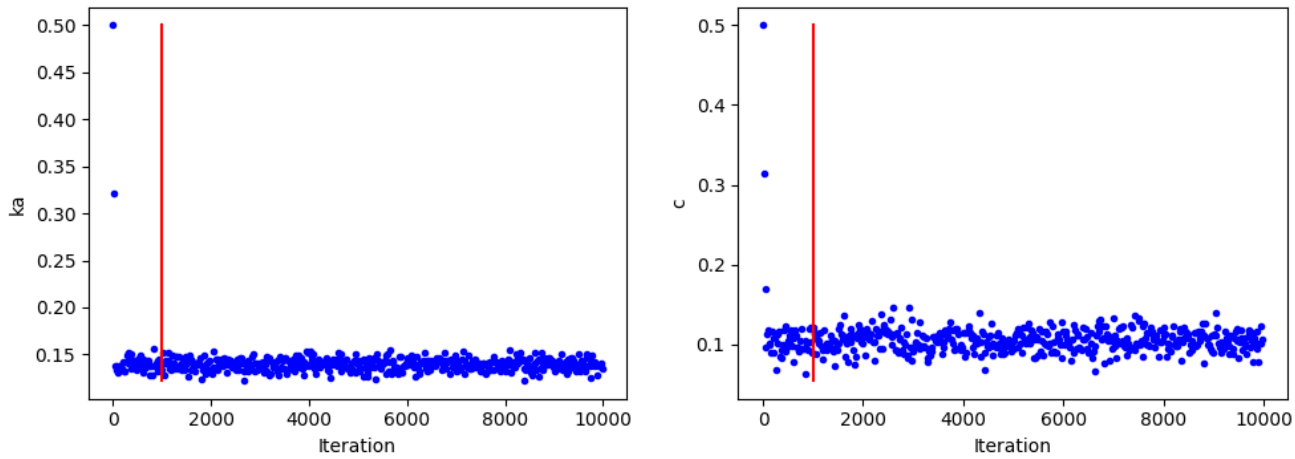

Figure 7. Markov Chain Monte Carlo (MCMC) calibration processes of k_a and c parameters.