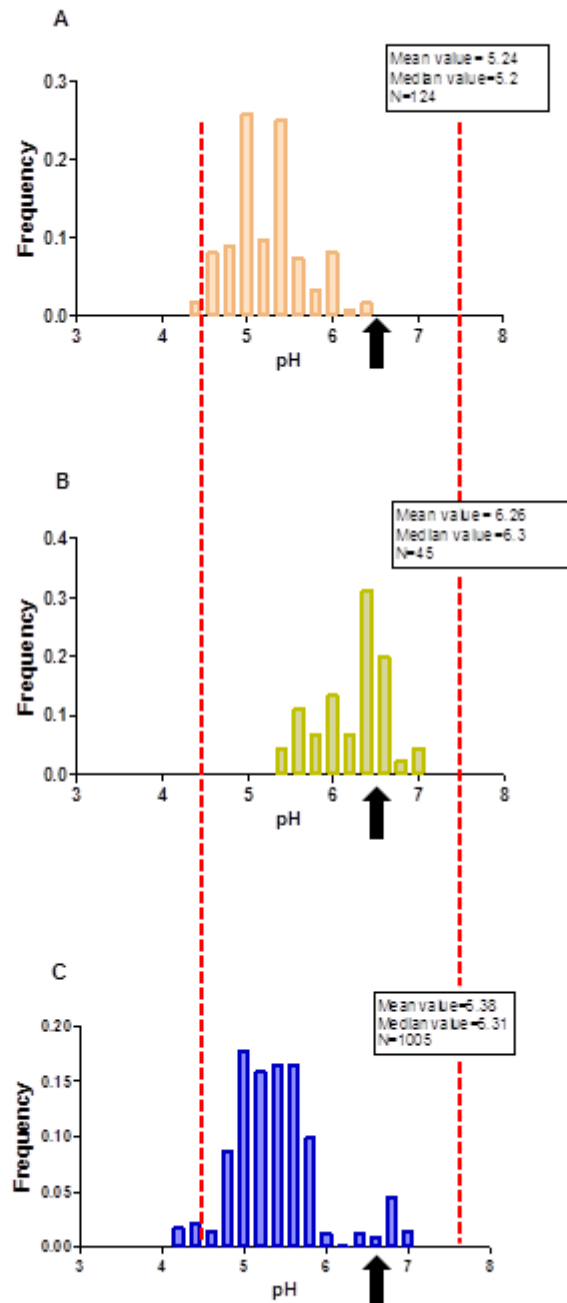


Supplementary Material SM1-to-SM3

SM1 . Distributions in the *pH*-values among aquatic environments. Distributions are given for three BU endemic areas: (A) Akonolinga, Cameroon; (B) Bankim, Cameroon and (C) French Guiana. (From the data published in Garchitorea *et al.* 2015a and Morris *et al.* 2014, 2016). Dotted lines delineate the range of *pH* values used in our experiments. The black arrow indicates the *pH* value of control medium 7H9.



SM 2. Statistics driven from the maximal (A) and minimal (B) linear mixed models used to fit the number of *Mycobacterium ulcerans* cells. Models are transcribed in R language. In both cases, samples were declared as explanatory variables with random effects. Statistics in bold characters are those that are significant at 5% C.I.

(A) Maximal model:

lme (number of bacteria ~ $pH \times Chitin \times Time + pH \times Chitin + pH \times Time + Chitin \times Time + Chitin + Time + pH$,
 random=~1 | Sample,data=data,method="ML")

| Explanatory variable | F- value | p-value |
|------------------------|----------|------------------|
| Time | 13.077 | <0.001 |
| <i>pH</i> | 1.632 | 0.161 |
| Chitin | 4.305 | 0.046 |
| <i>pH</i> ×Chitin | 1.980 | 0.088 |
| <i>pH</i> ×Time | 1.820 | 0.026 |
| Chitin×Time | 9.724 | <0.001 |
| <i>pH</i> ×Chitin×Time | 0.899 | 0.593 |

(B) Minimal model:

lme(Numberbacteria~ $pH \times Chitin + pH \times Time + Chitin \times Time + Chitin + Time +$
 pH ,random=~1 | Sample,data=data,method="ML")

| Explanatory variable | F- value | p-value |
|----------------------|----------|------------------|
| Time | 13.261 | <0.001 |
| <i>pH</i> | 1.610 | 0.167 |
| Chitin | 4.679 | 0.038 |
| <i>pH</i> ×Chitin | 2.008 | 0.084 |
| <i>pH</i> ×Time | 1.845 | 0.021 |
| Chitin×Time | 9.861 | <0.001 |

SM 3. Changes in the number of *Mycobacterium ulcerans* cells within three pH groups. The three pH groups are defined as follows: pH low (4.5, 5.0, 5.5); pH middle (6.0, 6.5) and pH high (7.0, 7.5). Each color line represents a different time (t = 0, 25, 35 and 50).

