This article contains experimental data, images and methods for the growth/no growth interface of *Zygosaccharomyces bailii* in simulated acid sauces. Mentioned data are related to the research article “Modeling growth/no growth interface of *Zygosacccharomyces bailii* in simulated acid sauces as a function of natamycin, xanthan gum and sodium chloride concentrations” (Zalazar et al., 2018) [1]. The growth was assessed colorimetrically by using 2-(4-iodophenyl)-3-(4-nitrophenyl)-5-phenyl-2H-tetrazolium chloride and 2-methoxy-1,4-naphthoquinone as detection reagents. Furthermore, yeast growth was confirmed by plate count.

© 2018 Published by Elsevier Inc. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/).
1. Data, experimental design, materials and methods

Determination of microbial G/NG interfaces is a useful tool to evaluate microbiological stability and antimicrobial effectiveness. The G/NG boundary of microorganisms can be examined by probabilistic models as a function of the stress factors applied [2]. The combination of stress factors that assure low probability of growth is a key factor to determine product formulation [3]. To evaluate the effect of the stress factors mentioned on yeast growth in acid sauces, different systems were formulated varying nata-mycin, NaCl and xanthan gum levels, as it is mentioned in Table 1. Model system preparation was described in the research article (Zalazar et al., 2018) [1].

1.1. Visual observation of yeast growth

Most models have been developed in liquid media, which can successfully mimic the microbial growth environment of liquid foods or dispersed systems with low viscosity, where the microbial growth site is the aqueous phase [4]. However, in solid or semi-solid foods, microorganisms can also grow on the surfaces or within the substrate. In these conditions, microorganisms are immobilized and forced to form colonies [5]. The visual observation of yeast growth in system A (1–3), B (1–3) and C (1–3) was evaluated (Table 1 and Fig. 1). Yeast strain, inocula preparation, viability determination and yeast growth evaluation was described in the research article [1]. To perform this photograph, the wells were inoculated and the growth were observed after 5 days at 25 °C.
Table 1
Concentrations of natamycin, NaCl and xanthan gum in model systems.

| System | Natamycin (mg/L) | NaCl (wt%) | Xanthan gum (wt%) |
|--------|------------------|------------|-------------------|
| A (1–3)| 0.0              | 0.0        | 0.00              |
| B (1–3)| 0.0              | 0.0        | 0.50              |
| C (1–3)| 0.0              | 0.0        | 1.00              |
| D (1–4)| 0.0              | 1.5        | 0.00              |
| E (1–4)| 0.0              | 1.5        | 0.50              |
| F (1–4)| 0.0              | 1.5        | 1.00              |
| G (1–4)| 2.0              | 1.5        | 0.00              |
| H (1–4)| 2.0              | 1.5        | 0.50              |
| I (1–4)| 2.0              | 1.5        | 1.00              |
| J (1–4)| 4.0              | 1.5        | 0.00              |
| K (1–4)| 4.0              | 1.5        | 0.50              |
| L (1–4)| 4.0              | 1.5        | 1.00              |
| M (1–4)| 6.0              | 1.5        | 0.00              |
| N (1–4)| 6.0              | 1.5        | 0.50              |
| O (1–4)| 6.0              | 1.5        | 1.00              |
| J (5–8)| 2.0              | 6.0        | 0.00              |
| K (5–8)| 2.0              | 6.0        | 0.50              |
| L (5–8)| 2.0              | 6.0        | 1.00              |
| M (5–8)| 6.0              | 6.0        | 0.00              |
| N (5–8)| 6.0              | 6.0        | 0.50              |
| O (5–8)| 6.0              | 6.0        | 1.00              |

*Systems name are related to their position in the microplates shown in Figs. 1 and 2.*

Fig. 1. Microplate wells showing the growth of *Z. bailii* in systems containing Sabouraud broth and different concentrations of xanthan gum. Capital letters at each row together with numbers at each column correspond to systems mentioned in Table 1.
Fig. 2. Determination of *Z. bailii* growth/no growth interfaces after 3 h of adding the redox indicator in the presence of 1.50% NaCl (Panel A) and in the presence of 6.00% NaCl (Panel B). Capital letters at each row together with numbers at each column correspond to systems mentioned in Table 1. Columns 4 and 8 without redox indicator (kept for plate count).
1.2. Growth/no growth data

The effect of the stress factors on Z. bailii on G/NG boundary was determined by a colorimetric method as described in the research article [1]. The visual detection of indicator color change in the wells, as compared with the negative and positive controls, was considered as absence of inhibition. As an example, the results of two microplates are shown in Fig. 2, in which the growth of Z. bailii was manifested by the appearance of color in the wells. Furthermore, yeast viability at interfaces was determined by surface plating on SA as described in the research article [1]. Table 2 illustrates the concordance between detection reagent and plate count for the microplates shown.

**Acknowledgements**

We acknowledge the financial support from Universidad de Buenos Aires, Agencia Nacional de Promoción Científica y Tecnológica and Consejo Nacional de Investigaciones Científicas y Técnicas de la República Argentina.

**Transparency document. Supplementary material**

Transparency document associated with this article can be found in the online version at https://doi.org/10.1016/j.dib.2018.10.099.

**References**

[1] A.L. Zalazar, M.F. Gliemmo, M. Soria, C.A. Campos, Modelling growth/no growth interface of Zygosaccharomyces bailii in simulated acid sauces as a function of natamycin, xanthan gum and sodium chloride concentrations, FOODRES-D-18-02070, 2018.

[2] K.A. Presser, T. Ross, D.A. Ratkowsky, Modelling the growth limits (growth/no growth interface) of Escherichia coli as a function of temperature, pH, lactic acid and water activity, Appl. Environ. Microbiol. 64 (1998) 1773–1779.

[3] T.D.T. Dang, L. Mertens, A. Vermeulen, A.H. Geeraerd, J.F. Van Impe, J. Debevere, Modeling the growth/no growth boundary of Zygosaccharomyces bailii in acidic conditions: a contribution to the alternative method to preserve foods without using chemical preservatives, Int. J. Food Microbiol. 137 (2010) 1–12.

[4] R.C. McKellar, X. Lu, A probability of growth model for E. coli O157:h7 as a function of temperature, pH, acetic acid, and salt, J. Food Prot. 64 (2001) 1922–1928.

[5] K.P. Koutsoumanis, P.A. Kendall, J.N. Sofos, A comparative study on growth limits of Listeria monocytogenes as affected by temperature, pH and aw when grown in suspension or on a solid surface, Food Microbiol. 21 (2004) 415–422.