

# Accepted Manuscript

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PII: S0740-0020(18)30281-8

DOI: [10.1016/j.fm.2018.07.010](https://doi.org/10.1016/j.fm.2018.07.010)

Reference: YFMIC 3051

To appear in: *Food Microbiology*

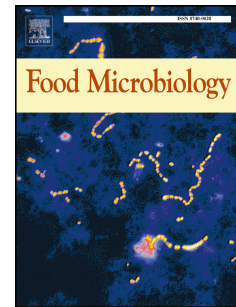
Received Date: 3 April 2018

Revised Date: 17 July 2018

Accepted Date: 18 July 2018

Please cite this article as: Sardella, D., Gatt, R., Valdramidis, V.P., Modelling the growth of pear postharvest fungal isolates at different temperatures, *Food Microbiology* (2018), doi: 10.1016/j.fm.2018.07.010.

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# 1 Modelling the growth of pear postharvest fungal isolates at different 2 temperatures

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## 10 Abstract

11 The effect of temperature on the mycelium growth kinetics of four postharvest fungal isolates  
12 (i.e., *Penicillium expansum*, *Alternaria alternata*, *Botrytis cinerea* and *Rhizopus stolonifer*)  
13 was assessed. A cardinal model with inflection (CMI) was used to describe the effect of the  
14 temperature on the growth rate ( $\mu$ ) and the lag time ( $\lambda$ ) of each isolate. Cardinal temperature  
15 values such as  $T_{min}$ ,  $T_{max}$  and  $T_{opt}$  were estimated and isolates were sorted according to their  
16 growth rate and lag time duration. Additionally, model validation was performed on a  
17 medium prepared from mashed pear pulp and on artificially wound-inoculated pear fruits. *P.*  
18 *expansum* was shown to be the most psychotrophic fungus with the lowest estimated  $T_{min} =$  -  
19 8.78. Model validation on pear pulp agar showed growth rate over-prediction in the case of *R.*  
20 *stolonifer* and *B. cinerea* but a good correlation in the case of *P. expansum* and *A. alternata*.  
21 *In vivo* experiments on pear fruits showed discrepancies from the synthetic and the simulated  
22 counterparts for all the fungi with the only exception of *P. expansum*.

23 **Keywords:** Postharvest, CMI, pears, nutrients, predictive mycology.

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