**Title of the Abstract**

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**Abstract**

*Neosartorya* is one of the main genera isolated from fruit juices that show great resistance to heat treatments. This study aimed to synthesise through meta-regression the thermal resistance parameters of this fungus by adjusting an extended Bigelow equation to data from inactivation experiments conducted in liquid media.

After a systematic review, from 25 eligible studies published since 1970, the following information was extracted: thermal reduction time (D), pH and ºBrix of the medium, inactivation temperature, type of medium (juice, concentrate, model liquid food), fruit, use of preservatives, inactivation method and age of spores.

A Bigelow model describing log D as a function of temperature, pH and ºBrix was transformed into a data-driven overarching linear mixed-effects meta-regression model, from which log D\* (log D at reference temperature of 90ºC, pH 3.5 and ºBrix 12), zT, zpH and zBrix of *Neosartorya* spores were estimated for juices and concentrates as measured by different methods. The pooled log D\* of *Neosartorya* spores was estimated at 0.728 (SE=0.059). The main parameters influencing log D\* were age of spores (p=0.023) – the older the spores the greater their thermal resistance – and inactivation method (p=0.032). The three-neck round inactivation method produced a higher pooled log D\* (1.297, SE=0.247) than the thermal death tubes (0.436, SE=0.133), the polyethylene bag (0.585, SE=0.175) and the capillary methods (0.559, SE=0.189). Increasing soluble solids in juices was demonstrated to cause a greater increase in the fungus' thermal resistance than increasing soluble solids in concentrates/pastes/purees (p=0.001 for interaction term ºBrix×Type).

Overall, the strategic incorporation of the various moderators to the basic Bigelow equation was able to explain 43.6% of the variability in log D between studies. The meta-regression model can be useful in thermal process design and shelf-life estimation of fruit juices and concentrates.

**The abstract should not exceed 300 words.**

**Key words**: First keyword; second keyword; third keyword; fourth keyword.

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