Predicting safe sandwich production

Birk, Tina; Duan, Zhi; Møller, Cleide Oliveira de Almeida; Friis Hansen, Heidl; Knøchel, Susanne; Hansen, Tina Beck

Publication date:
2015

Document Version
Publisher's PDF, also known as Version of record

Link back to DTU Orbit

Citation (APA):

General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.
Have you ever experienced that 3 hours was not enough time to prepare, distribute and serve ready-to-eat sandwiches? If yes, this decision support tool might be for you. The tool helps you to control sandwich production by predicting growth of foodborne pathogens.

Using time/temperature measurements obtained during preparation, in combination with information on prehistory of the ingredients as well as the expected time/temperature conditions of distribution and serving, the growth of *Listeria monocytogenes*, *Salmonella* and psychrotrophic *Clostridium botulinum* can be predicted. Based on these predictions, the tool determines whether any of the lag times have been exceeded during the total preparation, distribution and serving time. All underlying growth models use a “worst case” ingredient identified as cooked, sliced chicken.

**Danish hygiene guidelines**
(nr. 9025 af 17/01/2013, afsnit 26.3)

Violation of the cold chain
- As per the guidelines, chilled foods should not be outside the cold chain for more than 3 hours, including the time for preparation and serving.
- A prolongation of the acceptable time outside the cold chain can be allowed if it can be documented that the prolongation does not result in any health risks.

For further details contact Tina Beck Hansen, email: tibha@food.dtu.dk