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Czech J. Food Sci.

**Medved'ová A., Valík
L., Sirotná Z.,**

Liptakova D.:

Growth

**characterisation of
*Staphylococcus***

***aureus* in milk: a**

quantitative approach

Czech J. Food Sci., 27 (2009): 433-453

Staphylococcus aureus is a pathogenic bacterium that induces several of human illnesses. The staphylococcal enterotoxin (SE) production as the results of previous growth of toxigenic strains is the most crucial problem which may lead to the staphylococcal food poisoning outbreaks in humans. That is why the growth of three strains of *Staphylococcus aureus* was characterised in milk and modelled in dependence of temperature. For the lag phase duration of *S. aureus* 2064, the Davey model was used with the following result: $\ln(1/\text{lag}) = 1.973 - 87.92/T + 285.09/T^2$ ($R^2 = 0.962$). The dependence of the growth rate on incubation temperature was modelled by the Ratkowsky square root model and

temperature range, respectively. The validation of both models showed high significance of the growth rate data fitting. The optimal temperature of $T_{opt} = 38.5^{\circ}$

C was resulted from Gibson model for the *S. aureus* 2064 growth in milk. For practical purpose, the time necessary for the increase of *S. aureus* by 3 log counts