ID der Kurzfassung : **242**

A Caenorhabditis elegans life-dead-assay for the estimation of the pathogenic potential of Shiga toxin-producing Escherichia coli from food samples

Inhalt

Shiga toxin-producing *Escherichia coli* (STEC) are important food-borne pathogens. The severity of clinical symptoms can vary from diarrhea to haemolytic-uremic syndrome and death. In STEC, the Shiga toxin subtype and the occurrence of additional virulence factors have an impact on the clinical manifestation. STEC from food can vary in serotype and virulence associated genes (VAGs) from those usually connected to severe clinical cases. Therefore, an assessment of the pathogenic potential of food isolates for humans would be helpful. Here, we established a *Caenorhabditis (C.) elegans* life-dead-assay to estimate the pathogenic potential of STEC from food samples. Five STEC strains harbouring different Shiga toxin genes and respective *stx* deletion mutants were tested concerning their impact on the lifespan of *C. elegans* SS104. For the life-dead-assay, worms were synchronized to the same L4 larval stadium. Fifteen worms were seeded on fresh nematode growth medium plates with either the non-pathogenic *E. coli* OP50 control strain or a challenge strain. Numbers of life and dead worms were counted each day. Kaplan-Meier survival curves were calculated using R and the median survival times (MSTs) of three technical and biological replicates were determined. For all tested strains, MSTs of the worm populations were reduced compared to the control strain OP50 but varied in the extend of the reduction. Worms fed on OP50 had an MST of 11 to 12 days. MSTs for STEC strains harbouring the stx2i variant were reduced to 8 to 11 days, respectively. STEC strains harbouring a stx2g variant led to a further reduction of the MST to 6 days. Deletion of the stx2g gene led to an increase of the MST compared to the wild type strain to 6.5 days. A *C. elegans* life-dead-assay for in vivo pathogenicity determination experiments for STEC from food samples was successfully established. Reductions in the MSTs for STEC were determined but vary according to the Shiga toxin subtype and the occurrence of further VAGs. The shape of the Kaplan-Meier survival curves differed between STEC strains and the investigated deletion mutants, respectively. Therefore, further detailed analyses could improve the discriminatory power of the *Caenorhabditis elegans* life-dead-assay.

Keywords

STEC, C. elegans

Registration ID

83

Professional Status of the Speaker

Postdoc

Junior Scientist Status

No, I am not a Junior Scientist.

Track Klassifizierung: Novel Methods

Typ des Beitrags: Poster presentation