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[home](#) [page](#) [about us](#) [contact](#)

[us](#)

Table of Contents

IN PRESS

CJFS 2014

CJFS 2013

CJFS 2012

CJFS 2011

CJFS 2010

CJFS 2009

CJFS 2008

CJFS 2007

CJFS 2006

CJFS 2005

CJFS 2004

CJFS 2003

CJFS 2002

CJFS 2001

CJFS Home

Editorial Board

For Authors

- **Authors Declaration**
- **Instruction to Authors**
- **Guide for Authors**
- **Copyright Statement**
- **Submission**

For Reviewers

- **Guide for Reviewers**
- **Reviewers Login**

Subscription

Czech J. Food Sci.

**Št'ástková Z.,
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**K., Koukalová K.,
Bogdanovičová K.:**

Differentiation of toxigenic *Staphylococcus aureus* strains isolated from retail meat products

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Staphylococcus aureus is a saprophyte and commensal of the skin and mucous membranes in both animals and humans. As a pathogen, it can cause a number of diseases ranging from minor skin infections to fatal sepsis. Toxigenic strains of *S. aureus* are currently among the leading causes of food-borne intoxication (staphylococcal enterotoxigenosis). Food contamination sources can be humans, raw materials, environment, technological equipment, etc. The identification of the origin of *S. aureus* would be helpful in the detection of the sources and routes of

contamination. The aim of our study was to determine the probable origin of the selected *S. aureus* isolates coming from retail meat products intended for direct consumption with the use of phenotypic and genotypic methods. A set of 45 *S. aureus* isolates producing staphylococcal enterotoxins (SEs) with the potential to cause food-borne intoxication were selected for the study. These isolates were producers of the following enterotoxins: SEA ($n = 10$), SEB ($n = 8$), SEC ($n = 10$), SED ($n = 7$), SEH ($n = 9$), and SEB along with SED ($n = 1$). The phenotypic method used was based on the assessment of the growth on crystal violet agar (CV agar). A PCR-based genotypic method enabled the screening of the isolates for the *sak* gene encoding the enzyme staphylokinase typically found in human *S. aureus* isolates. As can be inferred from the type of growth on CV agar and the presence of the *sak* gene, all the isolates analysed were probably of human origin. These results confirm that humans are a major source of the bacteria *S. aureus* in both the food industry and retail sale of food products.

Keywords:

SA 442; origin; staphylococcal enterotoxins; staphylokinase; crystal violet agar; phenotype; food

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