

PROPERTIES OF VIBRIO PARAHAEMOLYTICUS FROM SEAFOOD IMPORTED FROM ASIAN COUNTRIES: EVIDENCE FOR SPREAD OF PLASMIDS CARRYING ESBL-/CARBAPENEM RESISTANCES.

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INTRODUCTION

In European countries, multidrug-resistant (MDR) *Vibrio parahaemolyticus* are increasingly reported from imported fish/seafood intended for human consumption. As a natural inhabitant of aquatic environments, *V. parahaemolyticus* in fish/seafood poses a public health risk, as contaminated food products may cause gastrointestinal infections and/or septicæmia, especially in immunocompromised people. The global commodity flow seems to force the dissemination of MDR isolates and will limit the therapeutic options for the treatment of *Vibrio* infections in Europe.

METHODOLOGY

Antimicrobial resistance-testing in *V. parahaemolyticus* was conducted according to 2013/652/EU by broth microdilution. MIC data were interpreted using ECOFFs of EUCAST. S1-PFGE, MiSeq-sequencing and bioinformatics were performed to characterise the isolates in detail. The transferability of ESBL- and carbapenemase-producing isolates was assessed by in vitro filter mating experiments.

RESULTS

Antimicrobial resistance-testing of *V. parahaemolyticus* spp. isolates from imported seafood (n=144) revealed ESBL-producing isolates (n=11) and one carbapenemase-producing isolate (n=1). MiSeq-sequencing showed a broad genetic diversity of the isolates regarding their sequence types and resistance determinants (i.e. blaCTX-M, blaCMY). The carbapenem resistance of one isolate was caused by a plasmid-associated blaNDM-1 gene that could be efficiently transmitted to several clinically relevant Enterobacteriaceae. The transmissibility and genetic composition of the individual ESBL- plasmids will be also shown in detail.

DISCUSSION

As the number of reports on MDR *Vibrio* from fish/seafood imported from South-East Asia increases, questions regarding the safety of food products from this region arise. Our

findings underline that antibiotic resistance surveillance needs to be extended to the environments close to human activities and foods of aquatic origin.