

VIRULENCE AND ANTIMICROBIAL RESISTANCE DETERMINANTS OF VEROTOXIGENIC *ESCHERICHIA COLI* (VTEC) AND OF ESBL-PRODUCING MULTIDRUG RESISTANT *E. COLI* FROM FOODS OF ANIMAL ORIGIN ILLEGALLY IMPORTED TO EUROPE

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Microbial risk due to illegal food import has not been investigated so far. Here we aimed to reveal frequency, phenotype and genotype of verotoxigenic *E. coli* (VTEC) and ESBL-producing multidrug resistant (MDR) *E. coli* isolated from foods of animal origin confiscated at the EU airport borders. Of the 1500 food samples confiscated at the airports of Austria, Germany and Slovenia, the most frequent were cheese and meat products primarily from Turkey and from Balkan countries. The VTEC bacteria were isolated using ISO 16654:2001 for O157 and Ridascreen® ELISA based PCR testing of *stx* genes or ISO/ TS13136 for non-O157 VTEC, resulting in 15 isolates of VTEC (1%). In addition 600 samples from the Vienna airport were also tested for ESBL-producing MDR *E. coli*, using cefotaxime-McConkey agar. We identified 14 *E. coli* strains as ESBL/MDR *E. coli*. (0.9%) for phenotyping for antimicrobial resistance and for genotyping by microarray (Identibac®, AMR05). The 15 VTEC isolates were phenotyped as Stx toxin producing non-O157 strain. Only one isolate, from Turkish cheese, proved to be EHEC (O26:H46). The remaining 14 strains represent uncommon VTEC serotypes with *stx1* and/or *stx2* genes. Microarray analysis (Identibac®, Ec03) revealed a wide range of other non-LEE encoding virulence genes. Pulsed field electrophoresis (PFGE) showed high genetic diversity of the strains. Multilocus sequence typing (MLST) established three new ST types (ST4505, 4506 and 4507) in the MLST database, and indicated the existence of 5 small clusters with no relation to origin or serotype/genotype of the strains, but representing several human-related ST types. All VTEC isolates were sensitive to 18 antimicrobials relevant to human and/or animal health, and did not contain resistance genes. ESBL/MDR *E. coli* were resistant to at least 3 classes of antimicrobials. Microarray analysis detected TEM-1 in all but one strain and a variety of genes encoding resistances to other ESBLs (CTXM-1, OXA-1), trimethoprim, tetracycline, aminoglycosides and class1/class2 integrons (8/14 isolates).

E. coli virulence microarray detected 2-6 virulence genes in all but one MDR *E. coli*, and one of the strains qualified as an atypical EPEC. Even though the frequency and attributes of isolated VTEC and ESBL/MDR *E. coli* did not represent an immediate major risk through illegal food import for the countries involved, it is suggested that the unusual serovars of VTEC as well as the virulence and antimicrobial resistance determinants of ESBL/MDR *E. coli* detected here, may indicate a future emerging threat by strains in illegally imported foods.

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