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ESBL-producing bacteria and MRSA isolated from poultry and turkey products imported from Italy

C. Beninati, F. Reich, D. Muscolino, F. Giarratana, A. Panebianco, G. Klein, V. Atanassova

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Citation: Beninati C., Reich F., Muscolino D., Giarratana F., Panebianco A., Klein G., Atanassova V. (2015): ESBL-producing bacteria and MRSA isolated from poultry and turkey products imported from Italy. Czech J. Food Sci., 33: 97-102.

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ESBL and MRSA-producing bacteria in food-producing animals may contribute to increased incidences of infection in humans. This study was carried out on 38 samples obtained from 32 chickens and 6 turkey products purchased at retail outlets of Hannover (Germany) and imported from Italy. The samples included the thigh, breast fillet, gizzard, sausage, liver, heart, and roll, and were processed for the detection of ESBL producing *E. coli* and MRSA producing *Staphylococcus aureus*. Twenty-six chicken products (68.4%) of the total of poultry products analysed proved to be positive for *E. coli* and for phenotypical detection of ESBL. Six turkey products (100%) were positive for ESBL producing *E. coli*. *Staphylococcus aureus* was found in 4 chicken products (10.52%) that resulted positive in the detection of MRSA. *Serratia* spp. were reported in 4 samples that were also positive for ESBL. Thirty-three *E. coli* isolates from the poultry and turkey products were all resistant to at least one or more of the compounds tested. The highest resistance levels were observed, notably, against ampicillin and cefotaxim.

Keywords:

ESBL; MRSA; antibiotic resistance; chicken; turkey; retail products

References:

Biohaz: Assessment of the public health significance of methicillin resistant *Staphylococcus aureus* (MRSA) in animals and foods. Scientific Opinion of the Panel on Biological Hazards. EFSA Journal, 2009, 993: 1–73. Available at www.efsa.europa.eu/de/scdocs/doc/993.pdf

Bortolaia V., Larsen J., Damborg P., Guardabassi L. (2015): Potential Pathogenicity and Host Range of Extended-Spectrum β -Lactamase-Producing *Escherichia coli* Isolates from Healthy Poultry. *Applied and Environmental Microbiology*, 77, 5830-5833
<https://doi.org/10.1128/AEM.02890-10>

Cantón R., Novais A., Valverde A., Machado E., Peixe L., Baquero F., Coque T.M. (2008): Prevalence and spread of extended-spectrum β -lactamase-producing Enterobacteriaceae in Europe. *Clinical Microbiology and Infection*, 14, 144-153 <https://doi.org/10.1111/j.1469-0691.2007.01850.x>

Cohen Stuart James, van den Munckhof Thijs, Voets Guido, Scharringa Jelle, Fluit Ad, Hall Maurine Leverstein-Van (2012): Comparison of ESBL contamination in organic and conventional retail chicken meat. *International Journal of Food Microbiology*, 154, 212-214
<https://doi.org/10.1016/j.ijfoodmicro.2011.12.034>

Coque T.M., Baquero F., Canton R. (2008): Increasing prevalence of ESBL-producing Enterobacteriaceae in Europe. *Euro Surveillance*, 13(47), pii=19044. Available at www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19044

Costa Daniela, Vinúé Laura, Poeta Patricia, Coelho Ana Cláudia, Matos Manuela, Sáenz Yolanda, Somalo Sergio, Zarazaga Myriam, Rodrigues Jorge, Torres Carmen (2009): Prevalence of extended-spectrum beta-lactamase-producing *Escherichia coli* isolates in faecal samples of broilers. *Veterinary Microbiology*, 138, 339-344
<https://doi.org/10.1016/j.vetmic.2009.03.029>

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Crago B., Ferrato C., Drews S.J., Svenson L.W., Tyrrell G., Louie M. (2012): Prevalence of *Staphylococcus aureus* and methicillin-resistant *S. aureus* (MRSA) in food samples associated with foodborne illness in Alberta, Canada from 2007 to 2010. *Food Microbiology*, 32, 202-205 <https://doi.org/10.1016/j.fm.2012.04.012>

Devriese L.A., Hommez J. (1975): Epidemiology of methicillin-resistant *Staphylococcus aureus* in dairy herds. *Research in Veterinary Science*, 19: 23–27.

Doyle E.M., Hartmann F.A., Lee Wong A.C. (2011): White paper on sources of Methicillin-resistant *Staphylococcus aureus* (MRSA) and other Methicillin-resistant *Staphylococci*: Implications for our food supply? *Fri Food Safety Reviews*. UW–Madison, Food Research Institute

Faccioli-Martins P.Y., de Lourdes Ribeiro de Souza da Cunha M. (2012): MRSA epidemiology in animals. *Epidemiological Insight*, 5: 79–94.

Fessler A.T., Kadlec K., Hassel M., Hauschild T., Eidam C., Ehrlich R., Monecke S., Schwarz S. (2011): Characterization of methicillin-resistant *Staphylococcus aureus* isolates from food and food products of poultry origin in Germany. *Applied Environmental Microbiology*, 77: 7151–7157.

Friese A., Schulz J., Laube H., von Salviati C., Hartung J., Roesler U. (2013): Faecal occurrence and emissions of livestock-associated methicillin-resistant *Staphylococcus aureus* (laMRSA) and ESBL/AmpC-producing *E. coli* from animal farms in Germany. *Berliner und Münchener tierärztliche Wochenschrift*, 126: 175–180.

Gregova G., Kmetova M., Kmet V., Venglovsky J., Feher A. (2012): Antibiotic resistance of *Escherichia coli* isolated from a poultry slaughterhouse. *Annals of Agricultural and Environmental Medicine*, 19: 75–77.

Hanson B.M., Dressler A.E., Harper A.L., Scheibel R.P., Wardyn S.E., Roberts L.K., Kroeger J.S., Smith T.C. (2011): Prevalence of *Staphylococcus aureus* and methicillin-resistant *Staphylococcus aureus* (MRSA) on retail meat in Iowa. *Journal of Infection and Public Health*, 4, 169-174 <https://doi.org/10.1016/j.jiph.2011.06.001>

Köck R., Becker K., Cookson B., van Gemert-Pijnen J.E., Harbarth S., Kluytmans J., Mielke M., Peters G., Skov R.L., Struelens M.J., Tacconelli E., Navarro A., Torné Witte W., Friedrich A.W. (2010): Methicillin resistant *Staphylococcus aureus* (MRSA): burden of disease and control challenges in Europe. *Euro Surveillance*, 15 (41): pii=19688. Available at <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19688>

Kola A., Kohler C., Pfeifer Y., Schwab F., Kuhn K., Schulz K., Balau V., Breitbach K., Bast A., Witte W., Gastmeier P., Steinmetz I. (2012): High prevalence of extended-spectrum β -lactamase-producing Enterobacteriaceae in organic and conventional retail chicken meat, Germany. *Journal of Antimicrobial Chemotherapy*, 67, 2631-2634 <https://doi.org/10.1093/jac/dks295>

Leverstein-van Hall M.A., Dierikx C.M., Stuart J. Cohen, Voets G.M., van den Munckhof M.P., van Essen-Zandbergen A., Platteel T., Fluit A.C., van de Sande-Bruinsma N., Scharinga J., Bonten M.J.M., Mevius D.J. (2011): Dutch patients, retail chicken meat and poultry share the same ESBL genes, plasmids and strains. *Clinical Microbiology and Infection*, 17, 873-880 <https://doi.org/10.1111/j.1469-0691.2011.03497.x>

Overdeest Ilse (2011): Extended-Spectrum β -Lactamase Genes of *Escherichia coli* in Chicken Meat and Humans, the Netherlands. *Emerging Infectious Diseases*, 17, 1216-1222 <https://doi.org/10.3201/eid1707.110209>

Pantosti Annalisa (2012): Methicillin-Resistant *Staphylococcus aureus* Associated with Animals and Its Relevance to Human Health. *Frontiers in Microbiology*, 3, - <https://doi.org/10.3389/fmicb.2012.00127>

Pitout Johann D.D. (2010): Infections with Extended-Spectrum β -Lactamase-Producing Enterobacteriaceae. *Drugs*, 70, 313-333 <https://doi.org/10.2165/11533040-000000000-00000>

Randall L. P., Clouting C., Horton R. A., Coldham N. G., Wu G., Clifton-Hadley F. A., Davies R. H., Teale C. J. (2011): Prevalence of *Escherichia coli* carrying extended-spectrum β -lactamases (CTX-M and TEM-52) from broiler chickens and turkeys in Great Britain between 2006 and 2009. *Journal of Antimicrobial Chemotherapy*, 66, 86-95 <https://doi.org/10.1093/jac/dkq396>

Schwaiger Karin, Huther Sabine, Hölzel Christina, Kämpf Peter, Bauer Johann (2012): Prevalence of antibiotic-resistant enterobacteriaceae isolated from chicken and pork meat purchased at the slaughterhouse and at retail in Bavaria, Germany. *International Journal of Food Microbiology*, 154, 206-211 <https://doi.org/10.1016/j.ijfoodmicro.2011.12.014>

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Smet Annemieke, Martel An, Persoons Davy, Dewulf Jeroen, Heyndrickx Marc, Herman Lieve, Haesebrouck Freddy, Butaye Patrick (2010): Broad-spectrum β -lactamases among Enterobacteriaceae of animal origin: molecular aspects, mobility and impact on public health. *FEMS Microbiology Reviews*, 34, 295-316 <https://doi.org/10.1111/j.1574-6976.2009.00198.x>

Warren R. E., Ensor V. M., O'Neill P., Butler V., Taylor J., Nye K., Harvey M., Livermore D. M., Woodford N., Hawkey P. M. (2008): Imported chicken meat as a potential source of quinolone-resistant *Escherichia coli* producing extended-spectrum β -lactamases in the UK. *Journal of Antimicrobial Chemotherapy*, 61, 504-508 <https://doi.org/10.1093/jac/dkm517>

Waters A. E., Contente-Cuomo T., Buchhagen J., Liu C. M., Watson L., Pearce K., Foster J. T., Bowers J., Driebe E. M., Engelthaler D. M., Keim P. S., Price L. B. (2008): Multidrug-Resistant *Staphylococcus aureus* in US Meat and Poultry. *Clinical Infectious Diseases*, 46, 1227-1230 <https://doi.org/10.1093/cid/cir181>

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