20-22 June 2022

RIBMINS WG2/WG3 Virtual Training school

EFSA opinions on food/meat decontamination

Winy Messens (EFSA)



Trusted science for safe food



- EU food hygiene legislation is aimed at maintaining a high level of consumer protection at all stages of the food chain and at consumer protection against potential risks to health
- Decontamination practices can constitute a tool in reducing pathogenic microorganisms, but its use should only be permitted if a fully integrated control programme is applied throughout the entire food chain
- Art 3(2) of Reg (EC) No 853/2004: legal basis to approve/authorise the use of substances other than potable water to remove surface contamination from products of animal origin
- Before risk management decision, a risk analysis should be carried out taking into account the results of a risk assessment

General obligations

1. Food business operators shall comply with the relevant provisions of Annexes II and III.

2. Food business operators shall not use any substance other than potable water — or, when Regulation (EC) No 852/2004 or this Regulation permits its use, clean water — to remove surface contamination from products of animal origin, <u>unless use of the substance has been approved in accordance with the procedure referred to in Article 12(2)</u>. Food business operators shall also comply with any conditions for use that may be adopted under the same procedure. The use of an approved substance shall not affect the food business operator's duty to comply with the requirements of this Regulation.

EFSA application procedure



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Guidance document



Scientific guidance

European Food Safety Authority

EFSA Journal 2010;8(4):1544

SCIENTIFIC OPINION

Guidance

Guidance document on the submission of data for the evaluation of the safety and efficacy of substances for the removal of microbial surface contamination of foods of animal origin intended for human consumption

European Food Safety Authority

European Food Safety Authority (EFSA), Parma, Italy

This guidance was originally adopted on 11 March 2010. The present revision was endorsed by the Biological Hazards (BIOHAZ) Panel on 8 July 2020 and by the Food Contact Materials, Enzymes and Processing Aids (CEP) Panel on 9 September 2020¹.

Endorsement date	8 July 2020 (BIOHAZ Panel) and 9 September 2020 (CEP Panel)
Implementation date	27 March 2021

Administrative guidance

- <u>Administrative guidance for the</u> processing of applications for regulated products (update 2021)
- <u>EFSA's Catalogue of support</u> <u>initiatives during the life-cycle of</u> <u>applications for regulated</u> <u>products</u> (update 2021)

https://www.efsa.europa.eu/en/applications/biologicalhazard/regulationsandguidance



EFSA is requested to evaluate the safety and efficacy of a substance to remove microbial surface contamination of meat, considering:

- BIOHAZ CEF/CEP
- the toxicological safety of the substance (ToR 1)
 - the risk related to the release of the slaughterhouse and/or processing plant effluents, linked to the use of the substance, into the environment (ToR 4)



- the efficacy, i.e. does the use of the substance significantly reduce the level of contamination of pathogenic microorganisms (ToR 2)
- the potential emergence of reduced susceptibility to biocides and/or resistance to therapeutic antimicrobials linked to the use of the substance (ToR 3)

EFSA panels involved and WG members



Multidisciplinary assessment for **chemical** substance

Panel on Food Contact Material, Enzymes and Processing Aids (CEP)

- Toxicological safety
- Environmental risk assessment

Panel on Biological Hazards (BIOHAZ)

- Efficacy
- Antimicrobial resistance (AMR)

Declarations of Interests database

FIP WG on the evaluation of substances used to reduce microbial contamination from products of animal origin

This database contains the Annual Declarations of Interest (ADoIs) of all experts with active EFSA involvements. Also available:

- Previous ADols not included in this database are available on request
- ADols of other EFSA Panels, Networks and Working Groups are available on this line

EFSA's working groups consist of scientists from the relevant EFSA Scientific Panel(s) and may in addition contain external scientific experts with the required specialisation. In order to further support its work, EFSA can also invite other scientists with particular and relevant knowledge to contribute to one or more meetings of a working group by providing additional data, reports and publications and answering questions. These hearing experts are not members of the scientific bodies and they do not participate in the deliberations of the working group nor in the drafting and the adoption of the scientific outputs.

Experts		
Name	Role	Declaration of Interest
BOLTON Declan	Member	Dol 🖾
BOVER-CID Sara	Member	Dol 🔂
DE KNECHT Joop	Member	Dol 起
GROB Konrad	Member	Dol 🔁
MORTENSEN Alicja	Chair	Dol 🔁
PEIXE Luisa	Member	Dol 🔁
SKANDAMIS PANAGIOTIS	Vice-Chair	Dol 🔁
TLUSTOS Christina	Member	Dol 🗟

Assessment for **biological** substance

Panel on Biological Hazards (BIOHAZ)

- Toxicological safety
- Environmental risk assessment
- Efficacy
- Antimicrobial resistance (AMR)

EFSA assessments since 2010



Торіс	Year	Link
Recycling hot water as a decontamination technique for meat carcasses	2010	https://www.efsa.europa.e u/en/efsajournal/pub/1827
Lactic acid for the removal of microbial surface contamination of beef carcasses, cuts and trimmings	2011	https://www.efsa.europa.e u/en/efsajournal/pub/2317
Cecure® for the removal of microbial surface contamination of raw poultry products	2011	https://www.efsa.europa.e u/en/efsajournal/pub/2612
Listex [™] P100 for the removal of <i>Listeria monocytogenes</i> surface contamination of raw fish	2012	https://www.efsa.europa.e u/en/efsajournal/pub/2615
Peroxyacetic acid solution for the reduction of pathogens on poultry carcasses and meat	2014	https://www.efsa.europa.e u/en/efsajournal/pub/3599
Listex [™] P100 for reduction of pathogens on different ready-to-eat (RTE) food products	2016	https://www.efsa.europa.e u/en/efsajournal/pub/4565
Lactic and acetic acids to reduce microbiological surface contamination on pork carcasses and pork cuts	2018	https://www.efsa.europa.e u/en/efsajournal/pub/5482
Lactic acid to reduce microbiological surface contamination on carcases from kangaroos, wild pigs, goats and sheep	2022	https://www.efsa.europa.e u/it/efsajournal/pub/7265

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BIOHAZ



EFSA is requested to evaluate the safety and efficacy of lactic acid (LA) to remove microbial surface contamination of beef carcasses, cuts and trimmings, considering:

- The toxicological safety of the substance (ToR1)
- The risk related to the release of the slaughterhouse and/or processing plant effluents, linked to the use of the substance, into the environment (ToR4)
- The efficacy, i.e. does the use of the substance significantly reduce the level of contamination of pathogenic microorganisms (ToR2)
- The potential emergence of reduced susceptibility to biocides and/or resistance to therapeutic antimicrobials linked to the use of the substance (ToR3)

EXAMPLE 1: Com Reg

ANNEX

PART I

Conditions of use of lactic acid to reduce microbiological surface contamination of bovine carcases or half carcases or quarters at the level of the slaughterhouse

- Lactic acid solutions must only be prepared from lactic acid which complies with the specifications set out in Regulation (EU) No 231/2012.
- 2. Lactic acid solutions must:
 - (a) only be applied on entire carcases or half-carcases or quarters of meat from domestic bovine animals (including Bubalus and Bison species) at the level of the slaughterhouse;
 - (b) only be applied either by spraying or misting using from 2 % to 5 % lactic acid solution in potable water at temperatures of up to a maximum of 55 °C;
 - (c) be applied under controlled and verifiable conditions integrated in a HACCP-based management system including, at least, the criteria set out in Part II.
- 3. Lactic acid solutions must not be applied to carcases with visible faecal contamination.
- 4. The application of lactic acid solutions must not result in any irreversible physical modification of the meat.

PART II

Minimum HACCP criteria and control parameters

- Sampling of carcases for the purposes of assessing compliance with microbiological criteria within the meaning of Regulation (EC) No 2073/2005 must be carried out before the application of lactic acid solutions on the carcases or half-carcases or quarters.
- Lactic acid concentration during treatment must be, as part of the HACCP plan, verified by periodic monitoring, documented and recorded.
- The temperature of the lactic acid solution during treatment must, as part of the HACCP plan, be continuously monitored by instrumental measurements, documented and recorded.

PART III

Information on the treatment

Food business operators operating slaughterhouses in which lactic acid solutions are used to reduce microbial surface contamination of entire carcases or half-carcases or quarters must inform the food business operator receiving the treated carcases or half-carcases or quarters of such use. This information should be documented.

Article 1: Food business operators may use LA to reduce microbiological surface contamination on bovine carcases or half carcases or quarters at the level of the slaughterhouse in compliance with the conditions set out in the Annex to this Regulation.

https://eur-lex.europa.eu/legalcontent/EN/TXT/PDF/?uri=CELEX:3201 3R0101&from=EN



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CEF/CEP

BIOHAZ



In accordance with **Art 29 (1) (a) of Regulation (EC) No 178/2002**, EFSA is requested to evaluate, the safety and efficacy of lactic acid (LA) intended to be used by food business operators during processing to reduce microbiological surface contamination from carcases of the following wild game: **kangaroo** and **wild pigs**, and of the following small stock: **goats** and **sheep**. In particular, EFSA shall assess:

- The toxicological safety of the substance (ToR1)
- The risk related to the release of the processing plant effluents, following the use of the substance, into the environment (ToR4)
- The efficacy, i.e. does the use of this substance significantly reduce the level of contamination of pathogens on carcasses from wild game and small stock aforementioned (ToR2)
- The potential emergence of reduced susceptibility to biocides and/or resistance to therapeutic antimicrobials linked to the use of the substance (ToR3)

EXAMPLE 2: Conditions



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Conditions of use as provided by the applicant

Concen- tration	Temperature	Product to be treated	Method	Duration	Pressure	Removal	Recycling
2-5%	Up to 55°C	At the end of the slaughter line after the final carcass wash and final inspection	Spray or mist	6-7 s per carcass side	Up to 50 psi	Not foreseen	Not foreseen

Eligibility criteria (ToR2)

Table 1: Eligibility criteria for study selection related to their characteristics

Criteria relat	ted to	study characteristics
Population	In	Wild pig ^(a) , kangaroo, sheep and goat carcases before chilling at the slaughterhouse (referred to in the text as pre-chill). Wild pig and kangaroo hide-on carcases may have been chilled before they arrive at the slaughterhouse and are treated after removal of the hides.
Intervention	In	Lactic acid used by spraying or misting at a concentration of 2–5% and at a temperature of up to 55°C for a duration of 6–7 s per carcass side. The concentration and temperature of the lactic acid solution and duration of treatment needed to be reported/ available to assess these aspects.
Comparator	In	Water (or other solution)-treated or untreated controls ^(b)
Outcome of interest	In	The change in the presence and/or numbers (\log_{10} reduction) of <i>Campylobacter</i> spp., STEC/VTEC, <i>Salmonella</i> spp., <i>Listeria</i> spp., Enterobacteriaceae, coliforms and/or <i>E. coli</i> on the treated carcass at any time point after the treatment (e.g. immediately after treatment, during storage or of the retail cuts at the end of shelf-life)
Study design and setting	In	Experimentally controlled studies were included (studies without a control group were excluded). These may have been undertaken in a laboratory, pilot-scale plant or in an industrial (commercial) setting

EXAMPLE 2: Conclusions

РП

CEF/

3IOHAZ



- Treatment of carcases of wild pigs, goats, sheep and kangaroos with LA meeting the specifications of Reg (EU) No 231/2012 on food additives does not raise a safety concern under the intended conditions of use (ToR1)
- Release of LA is of no concern for the environment, assuming that wastewaters released by the slaughterhouses are treated on-site, if necessary, to counter the potentially low pH caused by LA, in compliance with local rules (ToR4)
- No conclusion could be reached on the efficacy of spraying or misting LA on wild pig, goat and sheep carcases (none of the submitted documents included an experiment that was found eligible) and on kangaroo carcases (based on the evidence provided) (ToR2)
- Treatment of these carcases with LA may induce reduced susceptibility to the same substance, but this can be minimised through the application of PRPs and by ensuring that target application conditions for the decontamination treatments are maintained throughout processing. There is currently no evidence that prior exposure of food-borne pathogens to LA leads to the occurrence of resistance levels that compromise antimicrobial therapy (ToR3)



- Current WG members: Declan Bolton, Sara Bover-Cid, Joop de Knecht, Konrad Grob, Alicja Mortensen, Luisa Peixe, Panagotis Skandamis, Christina Tlustos
- Staff members: Carla Martino, Winy Messens, Alexandra Tard
- **CEP Panel members:** Claude Lambre, Jose Manuel Barat Baviera, Claudia Bolognesi, Andrew Chesson, Pier Sandro Cocconcelli, Riccardo Crebelli, David Michael Gott, Konrad Grob, Evgenia Lampi, Alicja Mortensen, Gilles Riviere, Inger-Lise Steffensen, Christina Tlustos, Henk Van Loveren, Laurence Vernis and Holger Zorn
- BIOHAZ Panel members: Ana Allende, Avelino Alvarez-Ordóňez, Declan Bolton, Sara Bover-Cid, Marianne Chemaly, Robert Davies, Alessandra De Cesare, Lieve Herman, Friederike Hilbert, Konstantinos Koutsoumanis, Roland Lindqvist, Maarten Nauta, Luisa Peixe, Giuseppe Ru, Marion Simmons, Panagiotis Skandamis and Elisabetta Suffredini

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