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Assessment of the feed additive consisting of *Pediococcus acidilactici* DSM 16243 for all animal species for the renewal of its authorisation (Lactosan GmbH & Co.KG)

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Abstract

Following a request from the European Commission, the Panel on Additives and Products or Substances used in Animal Feed (FEEDAP) was asked to deliver a scientific opinion on the assessment of the application for renewal of authorisation of *Pediococcus acidilactici* DSM 16243 as a technological additive for all animal species. The applicant has provided evidence that the additive currently on the market complies with the existing conditions of authorisation. There is no evidence that would lead the FEEDAP Panel to reconsider its previous conclusions. Thus, the Panel concludes that the additive remains safe for all animal species, consumer and the environment under the authorised conditions of use. Regarding user safety *Pediococcus acidilactici* DSM 16243 is not irritant to skin and eyes but is considered a skin and respiratory sensitiser. There is no need for assessing the efficacy of the additive in the context of the renewal of the authorisation.

Keywords: technological additive, silage additive, *Pediococcus acidilactici* DSM 16243, safety, efficacy, QPS, renewal

Requestor: European Commission

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1. Introduction

1.1. Background and Terms of Reference as provided by the requestor

Regulation (EC) No 1831/2003[1] establishes the rules governing the Community authorisation of additives for use in animal nutrition. In particular, Article 14(1) of that Regulation lays down that an application for renewal shall be sent to the Commission at the latest one year before the expiry date of the authorisation.

The European Commission received a request from Lactosan GmbH & Co.KG[2] for the renewal of the authorisation of the product *Pediococcus acidilactici* DSM 16243, when used as a feed additive for all animal species (category: technological additives; functional group: silage additives).

According to Article 7(1) of Regulation (EC) No 1831/2003, the Commission forwarded the application to the European Food Safety Authority (EFSA) as an application under Article 14(1) (renewal of the authorisation). The particulars and documents in support of the application were considered valid by EFSA as of 17 February 2021.

According to Article 8 of Regulation (EC) No 1831/2003, EFSA, after verifying the particulars and documents submitted by the applicant, shall undertake an assessment in order to determine whether the feed additive complies with the conditions laid down in Article 5. EFSA shall deliver an opinion on the safety for the target animals, consumer, user and the environment and on the efficacy of the product *Pediococcus acidilactici* DSM 16243, when used under the proposed conditions of use (see Section 3.1.3).

1.2. Additional information

The additive consists of viable cells of *Pediococcus acidilactici* DSM 16243. It is currently authorised as a feed additive in the European Union (1k2102).[3]

EFSA has adopted one opinion on the safety and efficacy of this product for all animal species (EFSA FEEDAP Panel, 2011).

2. Data and methodologies

2.1. Data

The present assessment is based on data submitted by the applicant in the form of a technical dossier[4] in support of the authorisation request for the use of *Pediococcus acidilactici* DSM 16243 as a feed additive.

The European Union Reference Laboratory (EURL) considered that the conclusions and recommendations reached in the previous assessment are valid and applicable for the current application.[5]

2.2. Methodologies

The approach followed by the FEEDAP Panel to assess the safety and the efficacy of *Pediococcus acidilactici* DSM 16243 is in line with the principles laid down in Regulation (EC) No 429/2008[6] and the relevant guidance documents: Guidance on the characterisation of microorganisms used as feed additives or as production organisms (EFSA FEEDAP Panel, 2018) and Guidance on the renewal of the authorisation of feed additives (EFSA FEEDAP Panel, 2013).

[1] Regulation (EC) No 1831/2003 of the European Parliament and of the Council of 22 September 2003 on additives for use in animal nutrition. OJ L 268, 18.10.2003, p. 29.

[2] Lactosan GmbH & Co.KG, Industriestraße West 5, 8605 Kapfenberg, Austria.

[3] Commission Implementing Regulation (EU) No 1263/2011 of 5 December 2011 concerning the authorisation *Lactobacillus buchneri* (DSM 16774), *Lactobacillus buchneri* (DSM 12856), *Lactobacillus paracasei* (DSM 16245), *Lactobacillus paracasei* (DSM 16773), *Lactobacillus plantarum* (DSM 12836), *Lactobacillus plantarum* (DSM 12837), *Lactobacillus brevis* (DSM 12835), *Lactobacillus rhamnosus* (NCIMB 30121), *Lactococcus lactis* (DSM 11037), *Lactococcus lactis* (NCIMB 30160), *Pediococcus acidilactici* (DSM 16243) and *Pediococcus pentosaceus* (DSM 12834) as feed additives for all animal species. OJ L 322, 6.12.2011, p. 3–8.

[4] FEED dossier reference: FAD-2020-0090.

[5] The full report is available on the EURL website: https://ec.europa.eu/jrc/sites/jrcsh/files/FinRep-uorg-silage-group1.pdf

[6] Commission Regulation (EC) No 429/2008 of 25 April 2008 on detailed rules for the implementation of Regulation (EC) No 1831/2003 of the European Parliament and of the Council as regards the preparation and the presentation of applications and the assessment and the authorisation of feed additives. OJ L 133, 22.5.2008, p. 1.

3. Assessment

The product under assessment is a preparation of viable cells of *Pediococcus acidilactici* DSM 16243 and is currently authorised for use as a technological additive (functional group: silage additives) for use in forages for all animal species. This assessment regards the renewal of the authorisation of *Pediococcus acidilactici* DSM 16243 for the above-mentioned species.

3.1. Characterisation

3.1.1. Characterisation of the additive

The product currently authorised consists of ~ 35–60% bacterial cells and 50–65% carriers ([redacted]) and cryoprotectants ([redacted]). The minimum concentration of the active agent (*Pediococcus acidilactici* DSM 16243) is 5×10^{11} colony forming units (CFU) per gram of additive.

The information submitted regarding the manufacturing process lists some modifications applied to the fermentation process and composition of the additive, which have been developed since the first authorisation was granted. The modifications regard the composition of the fermentation medium (e.g. [redacted]). Regarding the composition of the additive, [redacted] are also used as cryoprotectants, and [redacted].

Analysis of three recent batches showed a mean value of 6.6×10^{11} CFU/g additive (range 5.8–7.0 $\times 10^{11}$ CFU/g additive).[7]

Specifications are set for Enterobacteriaceae (< 1,000 CFU/g), *Salmonella* spp. (no detection in 25 g), yeasts and filamentous fungi (< 1,000 CFU/g). Analysis of the above-referred batches showed compliance with these limits.[8] Analysis of three different batches showed concentrations of aflatoxins (B1, B2, G1 and G2), deoxynivalenol, zearalenone, lead, mercury, cadmium and arsenic below the respective limits of detection/quantification.[9,10]

No new data have been provided regarding the physico-chemical properties or stability of the additive. Since the changes introduced in the additive and its manufacturing process are not expected to have a significant effect on these characteristics, the data described in the previous opinion still apply (EFSA FEEDAP Panel, 2011).

3.1.2. Characterisation of the active agent

The active agent was isolated from silage. It is deposited in the Deutsche Sammlung von Mikroorganismen und Zellkulturen (DSMZ) with the accession number DSM 16243.[11] It has not been genetically modified.

Taxonomic identification was confirmed [redacted] based on the whole genome sequence (WGS).[12] [redacted]

The susceptibility of the bacterial strain to antibiotics was tested using a broth microdilution method.[13] The battery of antibiotics used included those recommended by EFSA for *Pediococcus* spp. (EFSA FEEDAP Panel, 2018). All the minimum inhibitory concentration values were equal or fell below the corresponding cut-off values. Therefore, the strain is considered to be susceptible to all the relevant antibiotics.

The whole genome sequence of the strain was searched for antibiotic resistance genes [redacted]

[7] Technical dossier/Section II/Annex II.1.2.
[8] Technical dossier/Section II/Annex II.1.3.
[9] Technical dossier/Section II/Annex II.1.4 with the limits of detection: aflatoxins (B1, B2, G1, and G2): 0.03 μg/kg, deoxynivalenol 10 μg/kg, zearalenone (5 μg/kg).
[10] Technical dossier/Section II/Annex II.1.5 with the limits of detection: Pb (0.1 mg/kg), Hg (0.1 mg/kg), Cd (0.03 mg/kg) and As (0.1 mg/kg).
[11] Technical dossier/Section II/Supplementary information May 2021/Annex_16243.pdf.
[12] Technical dossier/Section II/Annex_II_2_4_WGS.pdf.
[13] Technical dossier/Section II/Annex_II_2_5_Antibio.pdf.

[redacted].[14] No hits of concern were identified.

3.1.3. Conditions of use

The additive is currently authorised for use in forages for all animal species.
Under other provisions of the authorisation, it is specified that:

- In the directions for use of the additive and premixture, indicate the storage temperature and storage life.
- Minimum dose of the additive when used without combination with other microorganisms as silage additives: 1×10^8 CFU/kg fresh material.
- For safety: it is recommended to use breathing protection and gloves during handling.

The applicant has requested to maintain the same conditions of use.

3.2. Safety

In the previous opinion, the Panel concluded that, following the qualified presumption of safety (QPS) approach, the use of this strain in the production of silage was considered safe for target species, consumers and the environment (EFSA FEEDAP Panel, 2011). In the context of this application, the identity of the strain as *P. acidilactici* was confirmed and evidence that the strain does not carry determinants for resistance to antibiotics of human and veterinary importance was provided. Consequently, the conclusions already reached were still valid and *Pediococcus acidilactici* DSM 16243 is considered safe for the target species, consumers and the environment.

The safety for the user was evaluated by the FEEDAP Panel in the same previous assessment (EFSA FEEDAP Panel, 2011). The Panel concluded: 'Evidence of a lack of irritancy was provided for one formulation of the additive. It is unlikely that considering the nature of the alternative food grade excipients, different results would be obtained for other formulations containing *P. acidilactici* DSM 16243. Given the lack of information and its proteinaceous nature, the active agent has the potential to be a skin/respiratory sensitizer'.

The applicant declares that no adverse effects on the health of workers have been observed in the production plant or during usage of the additive.[15]

The applicant performed a literature search in order to provide further evidence that the additive remains safe under the approved conditions for target species, consumers, users and the environment. The literature search was conducted in August 2020 and without restrictions.[16] The search term used was '*Pediococcus acidilactici* DSM 16243' and the strategy followed was reported. The applicant searched in a total of seven relevant databases: Agricola, Agris, Google Scholar, Ingenta, PubMed, Science Direct and World Cat Library. The literature search retrieved a total of 29 publications. However, after removal of seven duplicates, none were considered relevant as these referred either to another product (two publications), to the previous EFSA FEEDAP opinion (four hits regarding the EFSA FEEDAP Panel, 2011), to the authorisation of the additive (two hits), to its efficacy (ten publications as silage additive and three as zootechnical additive), or were not in English (one publication in Russian).

Therefore, and since *P. acidilactici* is a QPS organism the FEEDAP Panel concludes that there is no evidence that would lead it to reconsider the previous conclusions that *Pediococcus acidilactici* DSM 16243 is safe for the target species, consumers and the environment under the authorised conditions of use. Regarding user safety, *Pediococcus acidilactici* DSM 16243 is not irritant to skin and eyes but is considered a skin and respiratory sensitiser.

3.3. Efficacy

The present application for renewal of the authorisation does not include a proposal for amending or supplementing the conditions of the original authorisation that would have an impact on the efficacy of the additive. Therefore, there is no need for assessing the efficacy of the additive in the context of the renewal of the authorisation.

[14] Technical dossier/Section II/Annex_II_2_6_AMR.pdf.
[15] Technical dossier/Section III.
[16] Technical dossier/Section III/Annex 3 Literature.

4. Conclusions

The applicant has provided evidence that the additive currently on the market complies with the existing conditions of authorisation.

There is no evidence that would lead the FEEDAP Panel to reconsider its previous conclusions. Thus, the Panel concludes that the additive *Pediococcus acidilactici* DSM 16243 remains safe for all animal species, consumers and the environment under the authorised conditions of use. Regarding user safety, *Pediococcus acidilactici* DSM 16243 is not irritant to skin and eyes but is considered a skin and respiratory sensitiser.

There is no need for assessing the efficacy of the additive in the context of the renewal of the authorisation.

5. Documentation as provided to EFSA/Chronology

Date	Event
12/11/2020	Dossier received by EFSA. *Pediococcus acidilactici* DSM 16243. Submitted by Lactosan GmbH & Co.KG
20/11/2020	Reception mandate from the European Commission
17/02/2021	Application validated by EFSA – Start of the scientific assessment
04/05/2021	Request of supplementary information to the applicant in line with Article 8(1)(2) of Regulation (EC) No 1831/2003 – Scientific assessment suspended. *Issues: characterisation*
07/05/2021	Reception of supplementary information from the applicant - Scientific assessment re-started
18/05/2021	Comments received from Member States
23/06/2021	Opinion adopted by the FEEDAP Panel. End of the Scientific assessment

References

EFSA FEEDAP Panel (EFSA Panel on Additives and Products or Substances used in Animal Feed), 2011. Scientific Opinion on the safety and efficacy of *Pediococcus acidilactici* (DSM 16243) sas a silage additive for all species. EFSA Journal 2011;9(9):2364, 11 pp. https://doi.org/10.2903/j.efsa.2011.2364

EFSA FEEDAP Panel (EFSA Panel on Additives and Products or Substances used in Animal Feed), 2013. Guidance on the renewal of the authorisation of feed additives. EFSA Journal 2013;11(10):3431, 8 pp. https://doi.org/10.2903/j.efsa.2013.3431

EFSA FEEDAP Panel (EFSA Panel on Additives and Products or Substances used in Animal Feed), Rychen G, Aquilina G, Azimonti G, Bampidis V, Bastos ML, Bories G, Chesson A, Cocconcelli PS, Flachowsky G, Gropp J, Kolar B, Kouba M, López-Alonso M, López Puente S, Mantovani A, Mayo B, Ramos F, Saarela M, Villa RE, Wallace RJ, Wester P, Glandorf B, Herman L, Kärenlampi S, Aguilera J, Anguita M, Brozzi R and Galobart J, 2018. Guidance on the characterisation of microorganisms used as feed additives or as production organisms. EFSA Journal 2018;16(3):5206, 24 pp. https://doi.org/10.2903/j.efsa.2018.5206

Abbreviations

CFU	colony forming unit
CV	coefficient of variation
dDDH	digital DNA–DNA hybridisation
DSMZ	Deutsche Sammlung von Mikroorganismen und Zellkulturen
EURL	European Union Reference Laboratory
FEEDAP	EFSA Panel on Additives and Products or Substances used in Animal Feed
MIC	minimum inhibitory concentration
TYGS	type strain genome server
WGS	whole genome sequence