SCIENTIFIC OPINION

EFSA Journal

ADOPTED: 26 January 2022

doi: 10.2903/j.efsa.2022.7153

Safety and efficacy of a feed additive consisting of disodium 5'-inosinate (IMP) produced by *Corynebacterium stationis* KCCM 80235 for all animal species (CJ Europe GmbH)

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Abstract

Following a request from the European Commission, EFSA was asked to deliver a scientific opinion on the safety and efficacy of disodium 5'-inosinate (IMP) produced by fermentation using *Corynebacterium stationis* KCCM 80235 as a sensory additive (flavouring compound) in feed and water for drinking for all animal species. The production strain is genetically modified, and it is resistant to streptomycin. No viable cells were detected in the final product. However, uncertainties remained on the genetic basis of the streptomycin resistance and on the possible presence of recombinant DNA from the production strain in the final product. Therefore, the Panel on Additives and Products or Substances used in Animal Feed (FEEDAP) could not conclude on the safety of the additive for the target species, consumers, users and the environment. Moreover, the FEEDAP Panel reiterated its previous concerns on the safety of the use of IMP in water for drinking due to hygienic reasons. The Panel concluded that the additive is efficacious to contribute to the flavour of feed and water for drinking.

Keywords: Sensory, flavouring compounds, disodium 5'-inosinate, safety, efficacy, all animal species

Requestor: European Commission

Question number: EFSA-Q-2021-00084

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Declarations of interest: The declarations of interest of all scientific experts active in EFSA's work are available at https://ess.efsa.europa.eu/doi/doiweb/doisearch.

Acknowledgments: The Panel wishes to thank the following for the support provided to this scientific output: FEEDAP Working Group on Microbiology.

Suggested citation: EFSA FEEDAP Panel (EFSA Panel on Additives and Products or Substances used in Animal Feed), Bampidis V, Azimonti G, Bastos ML, Christensen H, Dusemund B, Fašmon Durjava M, Kouba M, López-Alonso M, López Puente S, Marcon F, Mayo B, Pechová A, Petkova M, Ramos F, Sanz Y, Villa RE, Woutersen R, Anguita M, Brozzi R, Galobart J, Manini P, Tarrés-Call J and Pettenati E, 2022. Scientific Opinion on the safety and efficacy of a feed additive consisting of disodium 5'-inosinate (IMP) produced by *Corynebacterium stationis* KCCM 80235 for all animal species (CJ Europe GmbH). EFSA Journal 2022;20(3):7153, 13 pp. https://doi.org/10.2903/j.efsa.2022.7153

ISSN: 1831-4732

The EFSA Journal is a publication of the European Food Safety Authority, a European agency funded by the European Union.

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1. Introduction

1.1. Background and Terms of Reference

Regulation (EC) No 1831/2003[1] establishes the rules governing the Community authorisation of additives for use in animal nutrition. In particular, Article 4(1) of that Regulation lays down that any person seeking authorisation for a feed additive or for a new use of feed additive shall submit an application in accordance with Article 7.

The European Commission received a request from CJ Europe GmbH[2] for the authorisation of the additive consisting of disodium 5'-inosinate (IMP) produced by fermentation with *Corynebacterium stationis* KCCM 80235, when used as a feed additive for all animal species (category: sensory additives; functional group: flavouring compounds).

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 4(1) (authorisation of a feed additive or new use of a feed additive). EFSA received directly from the applicant the technical dossier in support of this application. The particulars and documents in support of the application were considered valid by EFSA as of 30 April 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 feed additive consisting of disodium 5'-inosinate (IMP) produced by fermentation with *C. stationis* KCCM 80235, when used under the proposed conditions of use (see **Section 3.1.6**).

1.2. Additional information

The additive consisting of IMP produced by fermentation with *C. stationis* KCCM 80235 is not authorised as a feed additive in the European Union.

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[3] in support of the authorisation request for the use of IMP produced by *C. stationis* KCCM 80235 as a feed additive.

The FEEDAP Panel used the data provided by the applicant together with data from other sources, such as previous risk assessments by EFSA or other expert bodies, peer-reviewed scientific papers, other scientific reports and experts' (elicitation) knowledge, to deliver the present output.

EFSA has verified the European Union Reference Laboratory (EURL) report as it relates to the methods used for the control of the IMP in animal feed. The Executive Summary of the EURL report can be found in Annex A.[4]

2.2. Methodologies

The approach followed by the FEEDAP Panel to assess the safety and the efficacy of IMP produced by *C. stationis* KCCM 80235 is in line with the principles laid down in Regulation (EC) No 429/2008[5] and the relevant guidance documents: Guidance on studies concerning the safety of use of the additive for users/workers (EFSA FEEDAP Panel, 2012), Guidance on the assessment of the safety of feed additives for the consumer (EFSA FEEDAP Panel, 2017a), Guidance on the identity, characterisation and conditions of use of feed additives (EFSA FEEDAP Panel, 2017b), Guidance on the assessment of the safety of feed additives for the target species (EFSA FEEDAP Panel, 2017c),

[1] Regulation (EC) No 1831/2003 of the European Parliament and of the council of 22 September 2003 on the additives for use in animal nutrition. OJ L 268, 18.10.2003, p. 29.
[2] CJ Europe GmbH, Unterschweinstiege 2-14, 60549 Frankfurt am Main, Germany.
[3] FEED dossier reference: FAD-2020-0098.
[4] The full report is available on the EURL website: https://ec.europa.eu/jrc/sites/default/files/finrep-fad-2020-0098-imp.pdf
[5] 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.

Guidance on the assessment of the efficacy of feed additives (EFSA FEEDAP Panel, 2018a), Guidance on the characterisation of microorganisms used as feed additives or as production organisms (EFSA FEEDAP Panel, 2018b) and Guidance on the assessment of the safety of feed additives for the environment (EFSA FEEDAP Panel, 2019).

3. Assessment

This opinion assesses the safety and efficacy of IMP produced by fermentation using *C. stationis* KCCM 80235 as a sensory additive (functional group: flavouring compounds) in feed and water for drinking for all animal species.

3.1. Characterisation

3.1.1. Characterisation of the production organism

IMP is produced by a genetically modified strain of *C. stationis* which is deposited in the Korean Culture Collection of Microorganisms with the accession number KCCM 80235.[6]

The taxonomic identification of the production strain KCCM 80235 as *C. stationis* was confirmed [redacted]

The production strain was tested for its susceptibility to the antimicrobials listed for '*Corynebacterium* and other Gram-positive' in the Guidance on the characterisation of microorganisms used as feed additive or as production organisms (EFSA FEEDAP Panel 2018b).[8] All minimum inhibitory concentration (MIC) values were below the cut-offs set in that Guidance except for streptomycin which showed a MIC [redacted] higher than the cut-off set in the Guidance. According to the applicant, the resistance found would be related to [redacted] However, no data supporting this statement was provided. The WGS of the production strain was interrogated for the presence of antimicrobial resistance (AMR) genes [redacted][7] No genes of concern were found. Therefore, uncertainties remain on the genetic basis of the streptomycin resistance.

The WGS was searched for the presence of genes encoding for toxins and virulence factors [redacted][7] No hits of concern were identified.

3.1.1.1. Information related to the genetically modified microorganism

Characterisation of the parental or recipient microorganism

[redacted]

Characterisation of the donor organisms

[redacted]

[6] Technical dossier/Section II/Annex/Confidential Annex/Annex_CONFID_II_2_04.
[7] Technical dossier/Supplementary information July 2021/SIN_Annexes_Conf/Annex_SIN_CONF_01.
[8] Technical dossier/Section II/Annex/Confidential Annex/Annex_CONFID_II_2_06.

[redacted][9]

Description of the genetic modification

[redacted]

3.1.2. Manufacturing process

The additive is produced by fermentation with *C. stationis* KCCM 80235.[10] [redacted]

The applicant declares that no antibiotics are used during the manufacturing process.[11]

3.1.3. Characterisation of the additive

Disodium 5'-inosinate (International Union of Pure and Applied Chemistry (IUPAC) name: disodium [(2*R*,3*S*,4*R*,5*R*)-3,4-dihydroxy-5-(6-oxo-3*H*-purin-9-yl)oxolan-2-yl]methyl phosphate (synonyms: inosin-5'-monophosphate disodium; sodium 5'-inosinate; inosine 5'-monophosphate disodium), a compound identified with the Chemical Abstracts Service (CAS) No 4691-65-0 and the European Inventory of Existing Commercial Chemical Substances (EINECS) No 225-146-4) is the active substance of the additive and has a molecular weight of 527.3 g/mol (392.17 g/mol, anhydrous). The molecular formula is $C_{10}H_{11}O_8N_4Na_2P{\cdot}7.5H_2O$ and the molecular structure of the anhydrous active substance is given in Figure 1.

[9] Technical dossier/Section II/Annex/Confidential Annex/Annex_CONFID_II_2_05.
[10] Technical dossier/Section II/Annex/Confidential Annex/Annex_CONFID_II_3_01 and Supplementary information July 2021/02_SIN_CJ_IMP_210723 paragraphs 2.2 and 2.3.
[11] Technical dossier/Section II/Annex/Confidential Annex/Annex_CONFID_II_3_03.

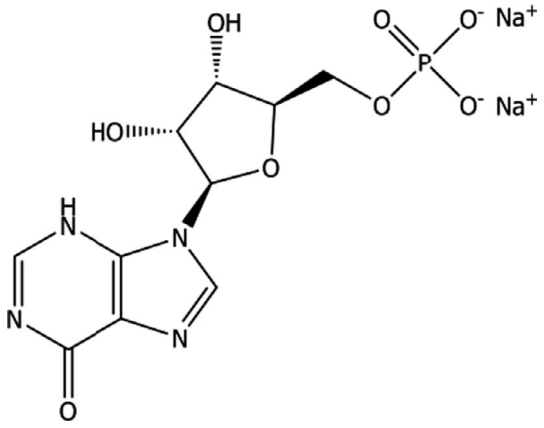

Figure 1: Molecular structure of IMP (anhydrous)

The additive contains by specification ≥ 97% IMP (on a 'dry matter basis' (DM)) and ≤ 28.5% water (on an 'as is' basis).[12] The analysis of five batches showed an average water content of 26.2% (range 25.8–26.5%) and an average value of IMP 100.4% on DM basis (range 99.9–100.7%), measured by UV spectroscopy.[13]

In another analytical report,[14] the applicant analysed the same five batches for IMP (average 74.2% (range 74.2–74.3%) on an 'as is' basis); water (26.2%, range 25.8–26.5%); nucleotides (other than IMP) (only adenosine monophosphate (AMP) was detected with an average value of 0.06% (range 0.04–0.08%) on an 'as is' basis); nucleosides and bases (not detected); inorganic components (sodium 9.3% (9.1–9.6%) on an 'as is' basis, potassium 0.11% (0.10–0.12%) on an 'as is' basis, phosphate 0.03% (0.02–0.05%) on an 'as is' basis, magnesium, calcium, fluoride, bromide, chloride, sulfate, not detected); nitrogen-containing components (ammonium, nitrates, nitrites, not detected); free amino acids (not detected) and organic acids (formic, acetic, citric, malic, succinic, lactic, not detected). IMP produced by fermentation with *C. stationis* KCCM 80235 is a product with less than 1% unidentified material on dry matter basis.

Three batches of the additive were analysed for chemical and microbiological contamination:[15] heavy metals (lead, cadmium and mercury), arsenic and chromium, aflatoxins (B1, B2, G1, G2), ochratoxin A, deoxynivalenol and zearalenone were below their corresponding limits of quantification (LOQs).[16] Dioxins (polychlorinated dibenzo-*p*-dioxins and dibenzofurans (PCDD/F)), dioxin-like polychlorinated biphenyls (DL-PCBs) and non-DL-PCBs were below the corresponding LOQs in all batches.[17] The calculated (upper bound) level was 0.07 ng WHO-PCCD/F-TEQ/kg for dioxins, 0.14 ng WHO-PCCD/F+PCB-TEQ kg for the sum of dioxins and DL-PCBs, and 0.60 μg/kg for non-DL-PCBs. *Salmonella* spp. was not detected in 25 g, yeasts, moulds, Enterobacteriaceae and *Escherichia coli* were < 10 colony forming units (CFU)/g of additive.

The results regarding impurities do not raise safety concerns.

[12] Technical dossier/Section II/Annex/Annex_II_1_01.
[13] Technical dossier/Section II/Annex/Annex_II_1_02.
[14] Technical dossier/Section II/Annex/Annex_II_1_03. Limit of detection (LOD) in mg/kg were 0.04 for ammonium; 0.08 for nitrates; 0.06 for nitrites; 0.1 for phosphoserine, sarcosine, alanine; 0.09 for taurine, threonine, glutamic acid, α-amino-n-butyric acid; 0.08 for phosphoethanolamine, serine, α-aminoadipic acid, lysine; 0.03 for urea; 0.13 for aspartic acid, phenylalanine, ornithine, 3-methylhistidine; 0.04 for glycine; 0.12 for citrulline, valine, γ-amino-*n*-butyric acid, arginine; 0.07 for cystine; 0.18 for methionine; 0.2 for cysthionine, leucine, ethanolamine, hydroxyproline; 0.16 for isoleucine, 1-methylhistidine; 0.21 for tyrosine, hydroxylysine, proline; 0.15 for β-alanine; 0.11 for β-aminoisobutyric acid, histidine; 0.19 anserine; 0.14 carnosine; 1.8 for guanine; 1.5 for xanthine, succinic acid; 2.5 for inosine; 3.1 for guanosine; 2.8 for xanthosine; 4.2 for AMP; 1.9 for XMP-2Na, adenine; 4.5 for GDP; 5.2 for ADP; 7.1 for GTP; 8.0 for ATP; 2.9 for cytosine; 3.5 for uracil; 3.8 for cytidine; 1.9 for hypoxanthine; 3.4 for uridine; 2.4 for adenosine; 7.1 for CMP; 6.8 for UMP; 1.1 for formic acid; 2.0 for acetic acid; 0.8 for citric acid; 1.2 for malic acid and 0.3 for lactic acid.
[15] Technical dossier/Section II/Annex/Annex_II_1_04.
[16] Limit of quantification (LOQ) in mg/kg were 0.015 for lead, 0.01 for cadmium and mercury, 0.04 for arsenic and 0.2 for chromium; in μg/kg were 0.2 for aflatoxins (B1, B2, G1, G2), 0.5 for ochratoxin A, 10 for deoxynvalenol and 5 for zearalenone.
[17] Technical dossier/Section II/Annex/Annex_II_1_04. LOQs (in ng/kg) ranged between 0.01 and 1,000 for dioxins/furans and between 3 and 10 for mono-*ortho*-PCBs. LOQ (in μg/kg) was 0.1 for non-dioxin-like PCBs (ICES-6).

The presence of viable cells of the production strain in the final product was investigated in three batches of IMP, each batch tested in triplicate.[18] [redacted] No viable cells of the production organism were detected in the final product.

The presence of recombinant DNA of the production strain in the final product was analysed in three batches of IMP.[19] [redacted] No DNA from the production strain was detected in the samples. However, the lysis buffers used to extract the DNA only contained sodium dodecyl sulfate and guanidine thiocyanate which may not ensure the recovery of the DNA from non-viable cells of the production strain that could potentially remain in the product. Therefore, the FEEDAP Panel cannot exclude the presence of recombinant DNA from the production strain in the product.

3.1.4. Physical properties of the additive

The additive is a white crystalline powder or colourless/white crystals with a bulk density, measured in five batches, of 558 kg/m^3 (range 540–570 kg/m^3).[20] It is soluble in water, sparingly soluble in ethanol, practically insoluble in ether. Its pH, measured in five batches, was on average 7.7 (1 in 20 solution) (range 7.69–7.73). The dusting potential of the additive measured in three batches following the Stauber–Heubach method gave results ranging from 2.1 to 3.5 g/m^3.[21] The particle size distribution was measured in the same three batches by sieving, particles below 105 and 44 μm diameter were 57.2% and 21.2% (w/w), respectively.[22]

3.1.5. Stability and homogeneity

No information on the shelf-life, stability (in premixtures, feedingstuffs and water for drinking) and capacity of the additive under assessment to distribute homogeneously in feed was provided. The applicant provided information on the shelf life and stability (in a vitamin/mineral premixture, in a compound feed for chickens for fattening (mash and pelleted forms) and in water for drinking) with an IMP originating from a different strain (*C. stationis* KCCM 80161) of the same producer. Such studies were described in a previous opinion (EFSA FEEDAP Panel, 2020). As the production process is the same and the product characteristics are very similar, the FEEDAP Panel considers that the results of those studies can be applicable to the product under assessment.

3.1.6. Conditions of use

IMP is intended to be used in premixes, complete feed or water for drinking for all animal species as a flavouring compound.[23] The applicant proposes a maximum use level of 50 mg additive/kg complete feed. For its use in water, the applicant recommends 25 mg/L water for drinking for rabbits, poultry species and pigs. For other species or when used in feed and water concomitantly, the daily amount that would be consumed via feed should not be exceeded.[24] If used in feed and water concomitantly, the amount should not exceed the daily intake that would result from the addition in feed at 50 mg/kg.

[18] Technical dossier/Section II/Annex/Annex_II_2_08.
[19] Technical dossier/Section II/Annex/Annex_II_2_06, Annex_II_2_07 and Supplementary information July 2021/ 02_SIN_CJ_IMP_210723 and Annex_SIN_CONF_02.
[20] Technical dossier/Supplementary information July 2021/SIN_Annexes/Annex_SIN_01_CJ IMP Batch Variation.
[21] Technical dossier/Section II/Annex/Annex_II_1_06.
[22] Technical dossier/Section II/Annex/Annex_II_1_05.
[23] Technical dossier/Supplementary information July 2021/SIN_CJ_IMP_210803_Rev.
[24] Calculated values would equate (in mg/day) to 100 for veal calf, 454 for cattle for fattening, 1,136 for dairy cows, 68 for sheep/goat, 454 for horse, 14.2 for dog and 3.4 for cats.

3.2. Safety

3.2.1. Safety of the production organism

The production strain has been properly identified at species level as *C. stationis*. No safety concerns were identified related to the genetic modification. The production strain is resistant to streptomycin. According to the applicant, the resistance would be related to [redacted] However, no data supporting this statement were provided. Based on the WGS data provided, the production strain is not expected to produce any toxic compound during fermentation. No viable cells were detected in the final product. Based on the data available, the FEEDAP Panel cannot exclude the presence of recombinant DNA from the production strain in the product.

Considering that uncertainties remain on the genetic basis of the streptomycin resistance and on the possible presence of recombinant DNA from the production strain in the final product, the FEEDAP Panel cannot conclude on the safety for the target species, consumers, users and the environment with regard to the production strain.

3.2.2. Safety for the target species, consumer and environment

Safety concerns from the additive may derive either from the active substance or from the residues of the fermentation process/production strain remaining in the final product. The product under assessment is highly purified (less than 1% unidentified material is present in the additive). IMP is widely distributed in all tissues of animals and plants. Its role in purine metabolism as well as its breakdown to uric acid and to allantoin (in mammals except for primates), is well known. The recommended levels of use of IMP in feed would be in the range of the total nucleotides levels that may be present in feedstuffs like soybean meal and fish meal, which contain 38 and 75 mg of total nucleotides/kg, respectively (EFSA FEEDAP Panel, 2020). The applicant provided some references on the use of IMP in animal nutrition and its effects. Among those references, Weaver and Kim (2014) reported no negative effects in weaned piglets (performance, and inflammatory response) up to 0.5 g/kg feed. Similarly, Hossain et al. (2016) reported no negative effects on juvenile read sea bream (*Pagrus major*) on the growth, immune response, antioxidant status and intestinal health when fed IMP up to 8 g/kg feed.

Therefore, the use of the nucleotide per se would not raise safety concerns for the target species when given at 50 mg/kg complete feed or used in combination with other ribonucleotides up to the same level. The applicant established conditions of use in water, as well as for concomitant use in feed and water, that would mirror the intakes resulting from the supplementation in feed, which are considered safe. However, the FEEDAP Panel reiterates its previous concerns on the safety of the use of IMP via water for drinking due to hygienic reasons (EFSA FEEDAP Panel, 2010).

Regarding the safety for consumers, IMP is metabolised and excreted efficiently by the target animals. It is not expected that the composition of tissues and products of animal origin will be affected by the use of IMP as a feed additive. The FEEDAP Panel also notes that the same substance is authorised as additive in food at levels up to 500 mg/kg.

IMP is naturally present in tissues of animals and plants. The use of IMP as a feed additive at the levels proposed is not expected to increase its concentration in the environment.

Potential concerns could also arise from the fermentation process. Based on the WGS data provided, the production strain is not expected to produce any toxic compound during fermentation. However, uncertainties remain on the genetic basis of the streptomycin resistance and on the possible presence of recombinant DNA from the production strain in the final product. Therefore, the FEEDAP Panel cannot conclude on the safety of IMP produced by *C. stationis* KCCM 80235 for the target species, consumers and the environment.

3.2.3. Safety for the user

No studies were submitted to support the safety for the user using the additive under assessment as test item. The applicant submitted an acute inhalation toxicity study performed according to OECD guideline 403,[25] an eye irritation study performed according to OECD guideline 437,[26] a skin irritation

[25] Technical dossier/Section III/Annex/Annex_III_3_03.
[26] Technical dossier/Section III/Annex/Annex_III_3_04.

study performed according to OECD guideline 439[27] and a skin sensitisation study following OECD guideline 429[28] performed with IMP produced by a different strain (*C. stationis* KCCM 80161) of the same producer. Those studies had been assessed in a previous opinion (EFSA FEDAP Panel, 2020). As the composition, purity and physico-chemical characteristics of the active substance under assessment is the same as of that assessed in the above-mentioned opinion and the production process is the same (or very similar), the FEEDAP Panel considers that the results of the studies performed with IMP produced by *C. stationis* KCCM 80161 can be used to support the safety for the user of the additive under assessment.

Based on the results with the other product, the additive should be considered not toxic by inhalation, not irritant to skin or eyes and not a dermal sensitiser.

Considering that uncertainties remain on the genetic basis of the streptomycin resistance and on the possible presence of recombinant DNA from the production strain in the final product, the FEEDAP Panel cannot conclude on the safety of the product for the user.

3.3. Efficacy

IMP is mentioned in Fenaroli's Handbook of Flavour Ingredients (Burdock, 2009), by the Flavour and Extract Manufactures Association (FEMA) as a flavour enhancer, i.e. a substance with no specific taste on its own but which has an ability to enhance existing flavours. Further, IMP is authorised as a food additive under Commission Regulation (EU) No 1129/2011.

The Panel considers that the effect of IMP to increase the taste of food is well documented and therefore no further demonstration of efficacy when used in feed or water for drinking is necessary.

4. Conclusions

The additive is produced by a genetically modified strain of *Corynebacterium stationis* (*C. stationis* KCCM 80235). The production strain is resistant to streptomycin. No viable cells were detected in the final product. However, uncertainties remain on the genetic basis of the streptomycin resistance and on the possible presence of recombinant DNA from the production strain in the final product. Therefore, the FEEDAP Panel cannot conclude on the safety for the target species, consumers, users and the environment. Moreover, the FEEDAP Panel reiterates its previous concerns on the safety of the use of IMP in water for drinking due to hygienic reasons.

The FEEDAP Panel concludes that the additive is efficacious to contribute to the flavour of feed and water for drinking.

5. Documentation provided to EFSA/Chronology

Date	Event
24/11/2020	Dossier received by EFSA. IMP (disodium 5'-inosinate) produced by fermentation with *Corynebacterium stationis* KCCM 80235 for all animal species. Submitted by CJ Europe GmbH.
08/01/2021	Reception mandate from the European Commission
30/04/2021	Application validated by EFSA – Start of the scientific assessment
14/06/2021	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*.
28/06/2021	Reception of the Evaluation report of the European Union Reference Laboratory for Feed Additives
05/07/2021	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*.
22/07/2021	Reception of supplementary information from the applicant - Scientific assessment re-started
30/07/2021	Comments received from Member States
26/01/2022	Opinion adopted by the FEEDAP Panel. End of the Scientific assessment

[27] Technical dossier/Section III/Annex/Annex_III_3_05.
[28] Technical dossier/Section III/Annex/Annex_III_3_06.

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Abbreviations

AMP	adenosine monophosphate
AMR	antimicrobial resistance
ANI	average nucleotide identity
CAS	Chemical Abstracts Service
CFU	colony forming units
DL-PCB	dioxin-like polychlorinated biphenyl
DM	dry matter
EINECS	European Inventory of Existing Commercial Chemical Substances
EURL	European Union Reference Laboratory
FAO	Food and Agriculture Organization of the United Nations
FEEDAP	EFSA Scientific Panel on Additives and Products or Substances used in Animal Feed
HPLC-UV	high-performance liquid chromatography coupled to UV detection
IMP	disodium 5'-inosinate
IUPAC	International Union of Pure and Applied Chemistry
JECFA	Joint WHO/FAO Expert Committee on Food
KCCM	Korean Culture Centre of Microorganisms
LOD	limit of detection
LOQ	limit of quantification
MIC	minimum inhibitory concentration
OECD	Organisation for Economic Co-operation and Development
PCDD/F	polychlorinated dibenzo-*p*-dioxins and dibenzofurans
TEQ	toxic equivalents
WGS	whole genome sequence
WHO	World Health Organization

Annex A – Executive Summary of the Evaluation Report of the European Union Reference Laboratory for Feed Additives on the Method(s) of the Analysis for disodium 5'-inosinate (IMP) produced by fermentation with *Corynebacterium stationis* KCCM 80235

In the current application an authorisation is sought under Article 4(1) for *disodium 5'-inosinate (IMP)* produced by fermentation with *Corynebacterium stationis* KCCM 80235 under the category/functional group 2(b) 'Sensory additives' / 'flavouring compounds' according to the classification system of Annex I of Regulation (EC) No 1831/2003. Specifically, the authorisation is sought for the use of the *feed additive* for all animal species. The *feed additive* consists of a minimum of 97 % (w/w of dry matter) of *disodium 5'-inosinate (IMP)* as an active substance which is produced by fermentation with a strain of *Corynebacterium stationis* KCCM 80235. The *feed additive* is intended to be used directly into *feedingstuffs* or through *premixtures* with proposed maximum levels of 50 mg *IMP* / kg *feedingstuffs* and in *water* for drinking.

For the determination of *IMP* in the *feed additive*, flavouring *premixtures* and *water*, the EURL previously recommended for official control in the frame of the dossier FAD-2018-0094 the internationally recognised FAO JECFA monograph "disodium 5'-inosinate" and a method based on high performance liquid chromatography coupled with UV detection (HPLC-UV). The EURL considers that these recommendations are also valid in the frame of the current application.

As no protocol of the method or experimental data were provided by the Applicant for the determination of *IMP* in *feedingstuffs*, the EURL could not evaluate or recommend a method for official control to determine *IMP* in *feedingstuffs*.

Further testing or validation of the methods to be performed through the consortium of National Reference Laboratories as specified by Article 10 (Commission Regulation (EC) No 378/2005, as last amended by Regulation (EU) 2015/1761) is not considered necessary.