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**D E C I S I O N**  
**of 7 April 2005**

**Case Number:** T 1223/01 - 3.3.9

**Application Number:** 94115697.8

**Publication Number:** 0646322

**IPC:** A23K 1/16

**Language of the proceedings:** EN

**Title of invention:**

Additive for use in feed for sows and feed for sows

**Applicant:**

Ajinomoto Co., Inc.

**Opponent:**

-

**Headword:**

**Relevant legal provisions:**

EPC Art. 52(4), 54, 56

**Keyword:**

"Novelty (yes), inventive step (yes) - conversion of a product-by-process claim into a process claim"

**Decisions cited:**

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**Catchword:**

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Case Number: T 1223/01 - 3.3.9

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.9  
of 7 April 2005

**Appellant:**

Ajinomoto Co., Inc.  
No. 15-1, Kyobashi 1-chome,  
Chuo-ku  
Tokyo 104 (JP)

**Representative:**

Strehl Schübel-Hopf & Partner  
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D-80538 München (DE)

**Decision under appeal:**

Decision of the Examining Division of the  
European Patent Office posted 5 April 2001  
refusing European application No. 94115697.8  
pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** P. Kitzmantel  
**Members:** W. P. Ehrenreich  
M.-B. Tardo-Dino

## Summary of Facts and Submissions

I. European Patent Application No. 94 115 697.8 in the name of AJINOMOTO Co., Inc., claiming JP priority of 5 October 1993 (JP 249405/93) and entitled "*Additive for use in feed for sows and feed for sows*" was filed on 5 October 1994. The Application was refused by a decision of the Examining Division issued in writing on 5 April 2001.

II. The decision was based on a set of Claims 1 to 6 where Claims 1 to 5 were filed on 1 September 2000 and Claim 6 was filed on 25 August 1999. Claims 1, 4, 5 and 6 read as follows:

"1. A feed for sows containing a feed additive comprising a reduced form of folic acid or an active derivative thereof in an amount which gives an intake of 0.1 to 100  $\mu\text{g}$  (as reduced form of folic acid) per kg ob body weight of a sow per day, wherein the reduced form of folic acid is selected from the group consisting of 7,8-dihydrofolic acid, 5,6,7,8-tetrahydrofolic acid and its poly-gamma-glutamic acid derivatives, 5-formyl- $\text{H}_4$ -folic acid and its poly-gamma-glutamic acid derivatives, 5,10-methylene- $\text{H}_4$ -folic acid and its poly-gamma-glutamic acid derivatives, 5-methyl- $\text{H}_4$ -folic acid and its poly-gamma-glutamic acid derivatives, 10-formyl- $\text{H}_4$ -folic acid and its poly-gamma-glutamic acid derivatives, 5-formimino- $\text{H}_4$ -folic acid and its poly-gamma-glutamic acid derivatives."

"4. An additive for use in feed for sows comprising a reduced form of folic acid or an active derivative thereof as defined in any of the claims 1 to 3."

"5. Use of a reduced form of folic acid or an active derivative thereof as defined in anyone of the claims 1 to 3 as a feed additive or in a feed for sows."

"6. A method of improving the efficiency of breeding of sows which is characterized in that the feed additive according to claim 4 is orally administered to the sows or that the sows are fed with the feed according to claim 1 or 2."

Claim 2 was dependent on Claim 1 and Claim 3 was directed to an embodiment of the subject-matter of Claim 2.

III. In the decision referring *inter alia* to the documents  
D1 EP-A 0 564 704  
D2 GB-A 1 193 191 and  
D5 EP-A 0 416 892,  
it was held that the subject-matter of Claims 1, 4, 5 and 6 was not new, in particular over the disclosure in document D2.

IV. On 12 June 2001, a Notice of Appeal against the above decision was filed by the Applicant (hereinafter referred to as the Appellant) with simultaneous payment of the prescribed fee.

The Statement of the Grounds of Appeal was filed on 9 August 2001 wherein the Appellant requested that a patent be granted on the basis of the aforementioned set of Claims 1 to 6.

V. In a communication issued on 27 December 2004 the Board, *inter alia*, informed the Appellant that the documents D1 and D5 were also relevant when assessing novelty and that the subject-matter of Claim 6 had to be discussed under the aspects of the treatment of the animal body by therapy, which would be excluded from patentability under Article 52(4) EPC.

In response to that communication the Appellant filed a letter dated 7 March 2005 accompanied by a new main request consisting of three claims which read as follows:

"1. An additive for use in feed for sows comprising a reduced form of folic acid or an active derivative thereof, wherein said reduced form of folic acid is in the form of disrupted cells or cell extract of a microorganism, obtained from cells cultivated in a culture medium added with p-aminobenzoic acid, an oxidized form of folic acid, and/or a nucleic acid."

"2. A feed for sows comprising a feed additive according to Claim 1."

"3. A method of improving the efficiency of breeding of sows which is characterized in that a feed additive according to Claim 1 is orally administered to the sows, or the sows are fed with a feed according to Claim 2."

In this letter, the Appellant also presented arguments as to the presence of an inventive step.

VI. Oral proceedings were held on 7 April 2005. During the proceedings, wherein the subject-matter of Claim 1 was

discussed with regard to the questions of insufficiency of disclosure in conjunction with clarity (Articles 83 and 84 EPC), novelty (Article 54(2) and (3) EPC), inventive step (Article 56 EPC) and wherein the Board raised objections against the subject-matter of Claim 3 in the light of the provisions of Article 52(4) EPC, the Appellant filed a new main request consisting of a single process Claim which reads as follows:

"A method for the preparation of a feed for sows comprising a feed additive comprising as an active ingredient for improving the efficiency of breeding a reduced form of folic acid or an active derivative thereof in an amount which gives an intake of 0.1 to 100 µg (as reduced form of folic acid) per kg of body weight of a sow per day, wherein said reduced form of folic acid is in the form of disrupted cells or cell extract of a microorganism, wherein said method comprises cultivating the cells in a medium added with p-aminobenzoic acid, an oxidized form of folic acid, and/or a nucleic acid, in an amount of 1 mg/l to 1 g/l and obtaining said disrupted cells or cell extract."

### **Reasons for the Decision**

1. The appeal is admissible.
2. *Articles 52(4) and 123(2) EPC*

The subject-matter claimed in the Claim of the new main request is not objectionable under these Articles.

3. *Articles 83 and 84 EPC*

The feature of Claim 1 underlying the decision under appeal:

"in an amount which gives an intake of 0.1 to 100 µg (as reduced from of folic acid) per kg of body weight of a sow per day",

has been re-introduced into the new process Claim. This feature was considered in the appealed decision to be unclear and non-limiting,

This feature, however, has to be considered in the light of the general knowledge of a skilled person who is familiar with pig-breeding and who knows the normal feed-intake of a sow per day dependent on the sow's weight. Given these circumstances, it lies within the bounds of routine for a skilled person to determine, on the basis of the concentration of the reduced folic acid in the feed additive, the amount of the additive to be added to the feed for sows in order to meet the requirements given by the above feature.

Therefore, it is the Board's opinion that the claimed process is clear and can be carried out by a person skilled in the art.

4. *Novelty (Article 54(2) and (3) EPC)*

With respect of the process claimed in the Claim of the main request, the pertinent prior art for the assessment of novelty is represented by the documents D1 (constituting prior art according to Article 54(3)) and D5, because only these citations pertain to the preparation of an additive for a feed for sows comprising cultivating cells of microorganisms in a

culture medium followed by homogenisation, thereby obtaining disrupted cells (D1, page 3, lines 5 to 40; D5, page 3, line 32 to page 4, line 24).

However, none of these documents contain a disclosure that the culture medium is added with p-aminobenzoic acid, an oxidized form of folic acid and/or nucleic acid. Thus, the claimed process is novel.

5. *Inventive step (Article 56 EPC)*

In the oral proceedings the Appellant submitted that the problem to be solved by the invention consisted in providing a process for the preparation of a feed for sows, which process allows in an efficient way the enrichment of reduced folic acid or its active derivatives in the feed. The reduced folic acid and its derivatives (e.g. tetrahydrofolic acid, THF, and its poly-gamma-glutamic acid derivatives) were an important agent for improving the efficiency of breeding of sows.

According to the Claim, this problem is solved by a process for the preparation of a feed comprising preparing a feed additive containing the reduced folic acid or its active derivatives in the form of disrupted cells or cell extract of a microorganism, wherein the preparation of the additive comprises cultivating the cells in a medium added with certain metabolites, represented by p-aminobenzoic acid, oxidized folic acid, and/or a nucleic acid, in an amount of 1 mg/l to 1 g/l. In this context, reference is made to the tables 5 and 7 of the original description (pages 23 and 28) allowing a comparison between the contents of folic acids (in mg/100g) in disrupted cells derived from the cultivation of the *Corynebacteria glutamica* ATCC 13869



and ATCC 13060 without the addition of the above metabolites (table 5, right column "after disruption") and those in the disrupted cells derived from the cultivation of the same bacteria with the addition of the metabolites (table 7, the columns concerning the results after disruption). The comparison shows a considerably increased amount of the THF in the disrupted cells cultivated with the addition of the metabolites according to the Claim.

The solution to the problem is not rendered obvious by the prior art.

D5 is representative of the closest prior art. This document describes the preparation of an additive in the form of disrupted cells suitable for the prevention and treatment of diarrhoea of animals, which additive can be added for instance to the feed for sows (cf. page 2, lines 51 to 53 in combination with page 4, lines 12 to 24). The additive is obtained by a process comprising cultivating cells of bacteria including the genera *Brevibacterium lactofermentum* ATCC 13869 and *Corynebacterium glutamicum* ATCC 13060 - i.e. the same genera as those included in the application - in a culture medium, followed by (e.g. mechanical) homogenisation in order to obtain disrupted cells (page 3, lines 32 to 54 and the examples 1 and 2).

However, D5 neither mentions the addition of metabolites to the culture medium nor does it deal with the problem of increasing the concentration of reduced folic acid in the feed additive.

A skilled person, therefore, intending to provide a process which leads to a feed additive on the basis of disrupted bacteria cells with an enhanced concentration

of reduced folic acid, could not obtain any information from D5 which would motivate him to add p-aminobenzoic acid, oxidized folic acid and/or nucleic acid to the culture medium in order to achieve this aim.

The other documents cited in the procedure do not provide any further indications from which a skilled person, starting from D5, could expect that addition to the culture medium of p-aminobenzoic acid, oxidized folic acid and/or nucleic acid, out of the number of existing metabolites, could enhance the concentration of reduced folic acid or its active derivatives in the feed additive.

From the above reasons, the Board therefore concludes that the process according to the Claim of the main request is based on an inventive step.

6. For the purpose of procedural economy the Board exercises its power pursuant to Article 111(1) EPC to remit the case to the Examining Division.

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.
  
2. The case is remitted to the first instance with the order to grant a patent on the basis of the Claim submitted during the oral proceedings, after any consequential amendment of the description.

The Registrar:

The Chairman:

G. Röhn

P. Kitzmantel