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Remarks:

•A request for correction of part of the description has been filed pursuant to Rule 88 EPC. A decision on the request will be taken during the proceedings before the Examining Division (Guidelines for Examination in the EPO, A-V, 3.).

•Amended claims in accordance with Rule 86 (2) EPC.

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(54) **Simple enzymatic process for preparing cefazolin**

(57) A process for preparing the 7-(1-H-tetrazol-1-yl) acetamide-3-(2-methyl-1,3,4-thiadiazol-5-yl)thiomethyl-3-cephem-4-carboxylic acid or cefazolin, comprising catalysing the acylation of the amino β -lactam, the 7-amino-3-[5methyl-1,3,4-thiadiazol-2-yl]thiomethyl-3-cephem-4-carboxylic acid, of the formula with an

activated acylating agent derived from acetic acid in the presence of a biocatalyst comprising penicillin amidase, and a product of the formula I obtainable by the foregoing process according to claims.

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EUROPEAN SEARCH REPORT

Application Number
EP 02 38 0224

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X,D	FERNANDEZ-LAFUENTE R ET AL: "Chemoenzymatic One-pot Synthesis of Cefazolin from Cephalosporin C in Fully Aqueous Medium, Involving Three Consecutive Biotransformations Catalyzed by D-Aminoacid Oxidase, Glutaryl Acylase and Penicillin G Acylase" TETRAHEDRON LETTERS, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 38, no. 26, 30 June 1997 (1997-06-30), pages 4693-4696, XP004074870 ISSN: 0040-4039 * the whole document *	39-46	C12P35/04 C12N9/84 C07D501/36
X,D	WON J I ET AL: "THE EFFECT OF 2-MERCAPTO-5-METHYL-1,3,4-THIADIAZOLE ON ENZYMATIC SYNTHESIS OF CEFAZOLIN" APPLIED BIOCHEMISTRY AND BIOTECHNOLOGY, CLIFTON, NJ, US, vol. 69, no. 1, January 1998 (1998-01), pages 1-9, XP001105929 ISSN: 0273-2289 * the whole document *	39-46	TECHNICAL FIELDS SEARCHED (Int.Cl.7) C12P C12N C07D
X,D	JUSTIZ O H ET AL: "One-pot chemoenzymatic synthesis of 3'-functionalized cephalosporines (cefazolin) by three consecutive biotransformations in fully aqueous medium" JOURNAL OF ORGANIC CHEMISTRY, AMERICAN CHEMICAL SOCIETY, EASTON, US, vol. 62, no. 26, 1997, pages 9099-9106, XP002177920 ISSN: 0022-3263 * the whole document *	39-46	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 19 March 2003	Examiner Smalt, R
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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Application Number
EP 02 38 0224

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	PARK C B ET AL: "PENICILLIN ACYLASE-CATALYZED SYNTHESIS OF CEFAZOLIN IN WATER-SOLVENT MIXTURES: ENHANCEMENT EFFECT OF ETHYL ACETATE AND CARBON TETRACHLORIDE ON THE SYNTHETIC YIELD" JOURNAL OF MOLECULAR CATALYSIS. B, ENZYMATIC, ELSEVIER, AMSTERDAM,, NL, vol. 9, no. 4-6, 21 April 2000 (2000-04-21), pages 275-281, XP000989461 ISSN: 1381-1177 * the whole document *	39-46	
X	"The Merck Index on CD-ROM, Version 12:2" MERCK INDEX ON CD-ROM, XX, XX, 1997, XP002177921 Cefazolin (entry 1967). ----	39-46	
A	US 6 465 227 B1 (RIETHORST WAANDER ET AL) 15 October 2002 (2002-10-15) * the whole document *		
A	US 5 677 141 A (ARAMORI ICHIRO ET AL) 14 October 1997 (1997-10-14) * the whole document *		
E	WO 02 086143 A (BIOFERMA MURCIA S A ;SANCHEZ-FERRER ALVARO (ES); GARCIA-CARMONA FR) 31 October 2002 (2002-10-31) * the whole document *	1-46	
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