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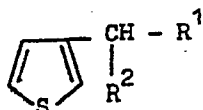
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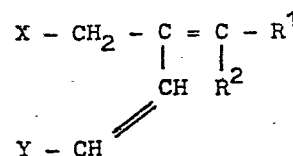
(54) 2,5-disubstituted-3-substituted methyl-penta-2,4-dienoic acid and derivatives, process for their preparation and their use in the preparation of alpha-substituted-thien-3-yl acetic acid and derivatives.

(57) A process for the preparation of 3-substituted thiophenes which involves cyclisation of a novel intermediate, avoids the use of previously employed expensive starting materials. The thiophenes are useful for the preparation of penicillins and cephalosporins.

The process is for the preparation of a thiophene of formula (I):



(II)



wherein X represents halogen or optionally functionalised hydroxyl, Y represents halogen, hydroxyl, or alkoxy; with a source of nucleophilic sulphur under basic conditions.

wherein R¹ represents a carboxylic acid group, or an ester or amide thereof or a nitrile group; R² represents a group suitable for use as an α-substituent in the side-chain of a penicillin or cephalosporin; which comprises treating a



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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
	CHEMICAL ABSTRACTS, vol. 76 (1972) no. 113022q, Columbus, Ohio, USA & GETEROGENNYI KATAL. REAKTS. POLUCH. PREVRASHCH. GETEROSIKL. SOEDIN. 1971, 221-8. * Abstract * --	1	C 07 D 333/24 C 07 C 57/02 69/65 121/413/ C 07 C 49/20
	CHEMICAL ABSTRACTS, vol. 86 (1977) no. 72422n Columbus, Ohio, USA & SU - A - 527 431 (IRKUTSK INST. ORG. CHEM.) * Abstract * --	1	TECHNICAL FIELDS SEARCHED (Int. Cl.) C 07 D 333/24 C 07 C 69/65 57/02 51/38 121/413
A	CHEMICAL ABSTRACTS, vol. 86 (1977) no. 189703w, Columbus, Ohio, USA & JP - A - 76 122 061 (SEITETSU CHEM. IND.) * Abstract * --	1	
A	US - A - 2 662 914 (C.D. ROBESON) * Column 2, lines 47-55 * --	10, 13	CATEGORY OF CITED DOCUMENTS X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
A	DE - A - 1 667 997 (TENNECO CHEMICALS) * Pages 1-2 * -- ./.	10, 13	
 The present search report has been drawn up for all claims			& member of the same patent family corresponding document
Place of search The Hague		Date of completion of the search 08-03-1979	Examiner VAN GEYT

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DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. ²)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	FR - A - 990 943 (DE BATAAFSCHE PETROLEUM MAATSCHAPPIJ) * Abstract * ----	10, 13	
			TECHNICAL FIELDS SEARCHED (Int. Cl. ²)