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NEW MESOMORPHIC DERIVATIVES OF 2-HYDROXY-4-BEHZOYLOXYBENZENALDEHYDE

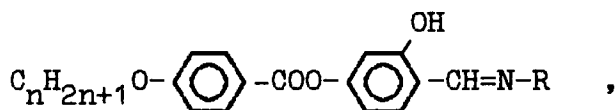
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Abstract Synthesis and mesomorphic properties of 2-hydroxy-4-(4-alkyloxybenzoyloxy)benzylideneamines are presented.

INTRODUCTION

This work concerns new liquid crystalline compounds suitable for non-chiral smectic C mixtures, namely, the derivatives of 2-hydroxy-4-benzoyloxybenzaldehyde of common formula



where $\text{R} = n-\text{C}_m\text{H}_{2m+1}$ (I), $-\text{CH}(\text{CH}_3)\text{C}_6\text{H}_{13}$ (II),
 $-\text{C}_6\text{H}_4-\text{C}_l\text{H}_{2l+1}$ (III).

RESULTS

The synthesis was carried out according to the following scheme:

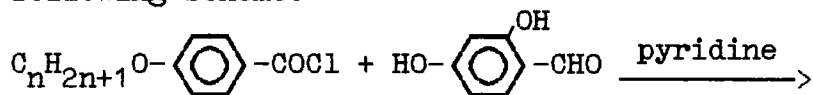
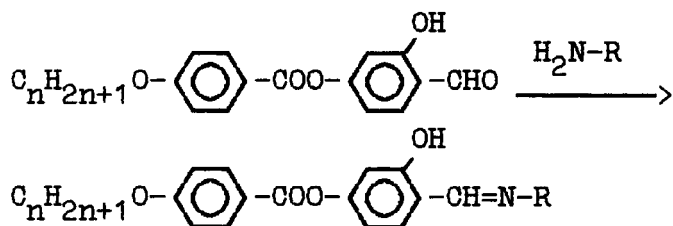
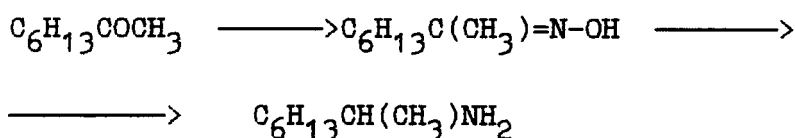


TABLE The phase transition temperatures ($^{\circ}\text{C}$) of 2-hydroxy-4-(4-alkyloxybenzoyloxy)-benzylidenamines

Compound type	n	m or l	O	S _O	N	I
I	6	9	. 66	-	. 78	.
I	6	10	. 63	. (41)	. 75	.
I	8	9	. 68	-	. 78	.
I	9	10	. 64	. 66	. 79	.
II	8	-	. 87	-	. 89	.
II	8	-	. 91	-	. 94	.
III	6	4	. 81,6.	94,1.	217,8.	
III	6	5	. 80,8.	91,4.	221,0.	
III	6	6	. 80,4.	111,0.	213,0.	
III	6	7	. 74,3.	120,5.	211,5.	
III	6	8	. 66,0.	131,5.	203,5.	
III	6	9	. 70,5.	137,5.	202,0.	
III	6	10	. 69,0.	144,0.	197,5.	
III	7	4	. 77,5.	96,0.	216,0.	
III	7	5	. 82,5.	110,5.	219,0.	
III	7	6	. 68,2.	124,5.	204,0.	
III	7	7	. 64,5.	134,4.	205,5.	
III	7	8	. 65,0.	143,5.	200,0.	
III	7	9	. 66,0.	148,2.	198,8.	
III	7	10	. 70,5.	152,5.	192,5.	
III	8	4	. 101,5.	105,5.	210,0.	
III	8	5	. 98,5.	120,5.	215,3.	
III	8	6	. 89,0.	133,8.	204,3.	
III	8	7	. 90,0.	120,0.	143,0.	
III	8	8	. 82,5.	151,0.	198,0.	
III	8	9	. 84,0.	157,0.	194,5.	
III	8	10	. 77,5.	160,5.	191,5.	



1-Methylheptylamine was obtained by a reduction of octanone-2 oxime by metallic sodium in butanol-1:



The mesomorphic properties of the synthesised compounds (I-III) are presented in Table.

The presented data show, that the derivatives of 4-alkylanilines (III) are the most valuable, as they form a smectic C mesophase in a wide temperature range. Furthermore, the derivatives of n-alkylamine (I) or sec-alkylamine (II) are significantly less stable than the derivatives of 4-alkylanilines (III).