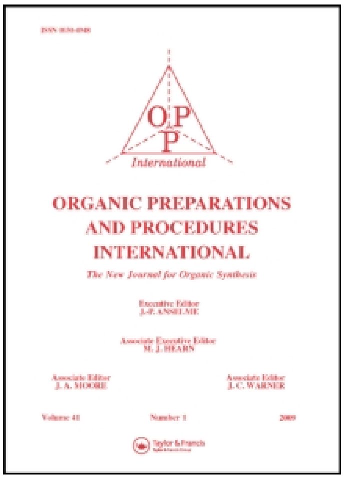

Organic Preparations and Procedures International
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t902189982

ESTERS OF (±)HEXAHYDRO-5-HYDROXYMETHYL-2H-AZEPIN-2-ONE

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To cite this Article Overberger, C. G. and Kozolwski, J. H.(1973) 'ESTERS OF (±)HEXAHYDRO-5-HYDROXYMETHYL-2H-AZEPIN-2-ONE', Organic Preparations and Procedures International, 5: 4, 199 — 202
To link to this Article: DOI: 10.1080/00304947309355568
URL: http://dx.doi.org/10.1080/00304947309355568

picrate salt, best prepared by treatment with excess saturated methanolic picric acid followed by decomposition of the pure picrate, mp. 123°, with aqueous base.

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ESTERS OF (±)HEXAHYDRO-5-HYDROXYMETHYL-2H-AZEPIN-2-ONE

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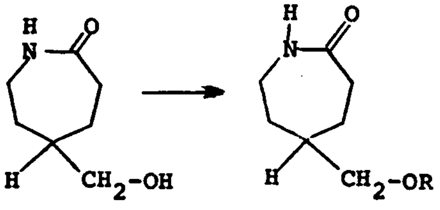
Five new derivatives (II) of (±)hexahydro-5-hydroxymethyl-2H-azepin-2-one (I)[1] have been prepared and characterized.



I II

II, R =
a) 1-Mentoxyacetyl
b) Phthaloyl-1-phenylalanyl
c) D-10-Camphorsulfonyl
d) Phthaloyl-H
e) Succinoyl-H

EXPERIMENTAL[5]

(±)Hexahydro-5-(ℓ-menthoxyacetoxymethyl)-2H-asepin-2-one (IIa).

A solution of 6.6 g (0.028 mole) ℓ-menthoxyacetyl chloride[2] $[\alpha]_D^{24}$ -83.7° (c, 2.0 chloroform), (bp. 67°/0.04 mm), in 35 ml of ethanol-free chloroform was added dropwise to a stirred solution of I, 4 g (0.028 mole) in 45 ml of pyridine at 0°. The mixture was stirred for 3 hr at 0° and then for 9-10 hrs at room temperature. The pyridine and chloroform were removed under reduced pressure. The residue was dissolved in chloroform and washed with 1 N HCl, then 1 N sodium bicarbonate and finally with water. Evaporation of the chloroform yielded a residue which was crystallized from _n_-pentane to give 8.7 g (90%) of a white solid, mp. 54-59°; the ester is soluble in most organic solvents.

(±)Hexahydro-5-(phthaloyl-ℓ-phenylalanyloxymethyl)-2H-azepin-2-one (IIb). - The compound was prepared as described for IIa from 3.14 g (0.01 mole) of phthaloyl-ℓ- alanyl chloride[3] (mp. 82-83°, $[\alpha]_D^{25}$ -96° (c, 2.2 benzene)), and 1.43 g (0.01 mole) of I. Removal of the chloroform at the last step gave an analytical sample as a colorless solid, mp. 152-158°.

(±)Hexahydro-5-(D-10-camphorsulfonoxymethyl)-2H-azepin-2-one (IIc). - The compound was prepared as described for IIa from 10 g of D-10-camphorsulfonyl chloride[4] (mp. 67-68°) and 5 g of I except for the work up which consisted of pouring the reaction mixture into 40 ml of water, 100 g of ice and 5.6 g of conc. HCl. Recrystallization of the white powder from _n_-propanol gave needles, mp. 143.5-144.5°.

(±)Hexahydro-5-(hydrogen phthaloyloxymethyl)-2H-azepin-2-one (IId). - Phthalic anhydride, 14.8 g (0.1 mole), and (±)hexahydro-5-hydroxymethyl-2_H_-azepin-2-one, 14.3 g (0.1 mole), were dissolved in 125 ml of pyridine on a steam bath and heated for

12 hrs. The pyridine was removed under reduced pressure leaving a white solid. The solid was dissolved in a solution of sodium carbonate and extracted twice with 100 ml portions of chloroform. The addition of excess 4 N HCl precipitated the solid. Recrystallization from 1100 ml of *n*-propanol gave 25 g (86%) of fine white needles, mp. 198-201° (dec.).

(±)Hexahydro-5-(hydrogen succinoyloxymethyl)-2H-azepin-2-one (IIe). - The compound was prepared as described for IId from 3 g of succinic anhydride and 4.3 g of I. However, the viscous liquid obtained after evaporation could not be induced to crystallize although it gave a correct elemental analysis. IR(neat): 3280, 3150-2500, 2930, 1640, 1635, 1170 cm^{-1}.

Elemental Analyses

	Calculated			Found		
	C,	H,	N	C,	H,	N
IIa	67.22	9.80	4.13	67.27	9.74	4.17
IIb	61.85	5.88	4.81	61.84	5.89	4.81
IIc[a]	57.13	7.61	3.92	51.31	7.35	3.92
IId	68.56	5.75	6.66	68.44	5.86	6.49
IIe	54.31	7.04	5.76	54.11	7.30	5.62

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a) Calcd.: S, 8.95. Found: S, 9.00.

Acknowledgement. - We gratefully acknowledge support of this work by the Chemistry Department of The University of Michigan, the Dow Chemical Company, the National Science Foundation traineeship, Hercules Incorporated, Sherwin-Williams-VanStone fellowship, and the Union Carbide Corporation. We also wish to thank Dr. James A. Moore for his help in identifying these preparations.

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5. Bps. and mps. are uncorrected. Microanalyses were performed by Alfred Bernhardt Microanalytisches Laboratorium, Mulheim (Ruhr), West Germany and by Spang Microanalytical Laboratory, Ann Arbor, Michigan. A Bendix-Ericsson Type 143A polarimeter was used in determining optical activity at the sodium D line.