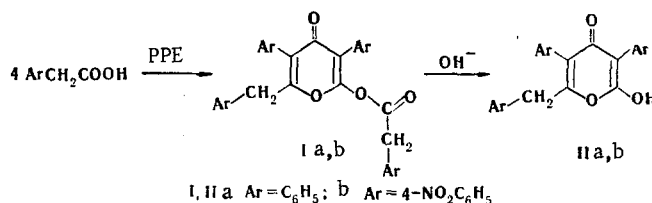


We have found that when phenylacetic acid and its 4-nitro derivative are heated in polyphosphoric ester (PPE), they undergo fourfold self-acylation to give compounds of the Ia,b type, which are converted to 2-hydroxy- $\gamma$ -pyrones IIa,b by alkaline hydrolysis.



A 3-g sample of phenylacetic acid was heated with vigorous stirring at 100° for 30 min in a tenfold excess of PPE, after which the mixture was hydrolyzed with cold water, heated carefully to the boiling point, and refluxed for 3-4 min. The hot aqueous solution of unchanged phenylacetic acid was decanted, and the residual oil began to crystallize on treatment with cold water to give colorless crystals of 2-phenylacetoxy-3,5-diphenyl-6-benzyl- $\gamma$ -pyrone (Ia), with mp 120° (from alcohol), in 72% yield (based on the converted acid). PMR spectrum: s, 3.18 (2H); s, 3.28 (2H); m, 6.55-7.38 ppm (20H). IR spectrum: 1755, 1640, 1550, and 1535 cm<sup>-1</sup>.

When Ia was refluxed for 15 min in 30% aqueous KOH solution, red crystals of the known 2-hydroxy-3,5-diphenyl-6-benzyl- $\gamma$ -pyrone (IIa), with mp 162-164° (from benzene), were formed.

The following compounds were similarly obtained after reaction at 100° for 50 min: 2-(4-nitrophenylacetoxy)-3,5-di(4-nitrophenyl)-6-(4-nitrobenzyl)- $\gamma$ -pyrone (Ib) as light-brown crystals with mp 96-98° (from methanol) in 80% yield; 2-hydroxy-3,5-di(4-nitrophenyl)-6-(4-nitrobenzyl)- $\gamma$ -pyrone (IIb) as light-brown crystals with mp 198° (from nitromethane). The character of the spectra of Ib and IIb is very similar to the character of the spectra of Ia and IIa. The results of analysis for C and H (and for N in the case of Ib and IIb) were in agreement with the calculated values for all of the compounds.

o-Bromo- and o-iodohomoveratric acids do not react under the described conditions, and homoveratric and homopiperonylic acids form different substances, the structure of which has not been ascertained.

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