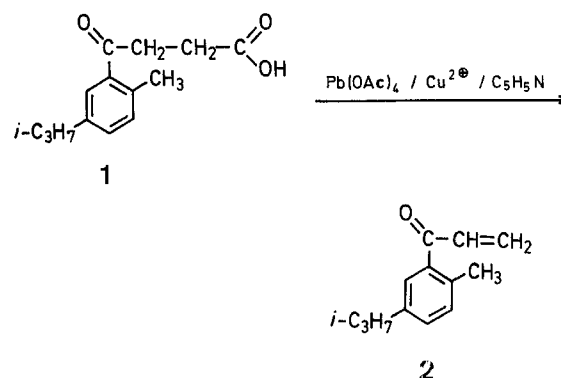


of acid chlorides to ethylene³. Other methods include chromium trioxide oxidation of allylic alcohols⁴, pyrolysis³, or base treatment⁵ of quaternary salts derived from β -di-alkylaminocarbonyl compounds.

We wish to report a new approach for the synthesis of vinylketones. Oxidative decarboxylation of primary acids with lead tetraacetate in the presence of cupric acetate is known to furnish alkenes⁶. Hence, the keto acid (**1**)⁷ was subjected to oxidative decarboxylation with lead tetraacetate and the anticipated vinyl ketone (**2**) was obtained.



The synthesis of six more vinylketones employing oxidative decarboxylation is presented in the following table. In view of the ready availability of γ -ketoacids, particularly aryl-propionic acids⁸, the synthesis of vinylketones through oxidative decarboxylation appears quite attractive.

Table. Synthesis of Vinyl Ketones through Oxidative Decarboxylation

	R ¹	R ²	R ³	Yield (%)
a	H	H	H	30
b	H	CH ₃	H	20
c	H	C ₂ H ₅	H	30
d	H	OCH ₃	H	20
e	CH ₃	H	CH ₃	45

A Novel Route for the Preparation of Aryl Vinyl Ketones¹

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Vinylketones have been widely used in synthetic investigations since they are excellent Michael acceptors². They are usually prepared by aluminium chloride catalyzed addition

The γ -keto acids listed in the Table are known compounds⁹⁻¹³. The reactions were performed using 0.06 mol quantities of the keto acid. The detailed preparation of the vinyl ketone (**2**) is given below; the same method was employed for the preparation of the other vinyl ketones. The syntheses of the above vinyl ketones (except **4e**) by other routes have been described previously^{14, 15, 16}. All vinyl ketones were characterized by elemental analysis, I. R. and N. M. R. spectroscopy.

2'-Methyl-5'-isopropylacrylophenone (2):

A mixture of the ketoacid (1) (14.04 g, 0.06 mol), cupric acetate (2.4 g, 0.0133 mol), pyridine (1.6 g, 0.02 mol), lead tetraacetate (44.0 g, 0.1 mol), and benzene (700 ml) was stirred under nitrogen for 0.5 hr at room temperature and under reflux for 1 hr. Excess of lead tetraacetate was destroyed with ethylene glycol (25 ml) and the reaction mixture separated with 5% aqueous sodium carbonate solution into acidic and neutral (7.7 g) portions. The neutral portion, on vacuum distillation furnished the vinyl ketone (2); yield: 3.5 g (31%); b.p. 160–165° (bath temperature)/5 torr. Work up of the acidic portion furnished the starting material (1); yield: 3 g.

For analysis, 2 was purified through chromatography on aluminium oxide (grade I).

$C_{13}H_{16}O$	calc.	C 82.93	H 8.57
(188.26)	found	83.11	8.67

I.R. (neat): ν_{\max} = 1675, 1615, 1570, 1490, 1460, 1410, 1370, 1300, 1250, 1190, 1135, 1060, 1015, 990, 970, 910, 833, and 806 cm^{-1} .

$^1\text{H-N.M.R.}$ (CCl_4): δ = 7.20 (d, 1H, $\text{C}^6\text{—H}$, J = 2 Hz), 7.07 (m, $\text{C}^3\text{—H}$ and $\text{C}^4\text{—H}$), 6.97–5.73 (m, 3H, —CO—CH=CH_2), 2.90 (m, 1H, $(\text{CH}_3)_2\text{CH—}$), 2.37 (s, 3H, Ar—CH_3), and 1.25 ppm (d, 6H, $(\text{CH}_3)_2\text{CH—}$, J = 7 Hz).

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