

NOTE**Perkin Reactions under Microwave Irradiation**

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The fast synthesis of cinnamic acid and its derivatives by Perkin reaction (**3a-c**) has been achieved under few minutes by microwave irradiation instead of 4-8 h taken by conventional heating under reflux. The yield of the products under microwave irradiation synthesis have been found better.

Key Words: Perkin reaction, Cinnamic acid, Microwave irradiation.

The condensation of aromatic aldehydes with acid anhydrides is called the Perkin reaction. When the anhydride has two α -hydrogens, dehydration always occurs¹. However, synthesis of cinnamic acid by the reaction of benzaldehyde with acetic anhydride in the presence of base requires 4-8 h of heating under reflux².

Microwave irradiation is an efficient and environmentally-benign method to activate various organic transformations to afford products in higher yields in shorter reaction periods and involving a very small amount of solvent³⁻¹⁰.

Melting points were taken in open capillaries and are uncorrected. Purity of the compound was checked by TLC. IR spectra were recorded on Perkin-Elmer 157 spectrometer on KBr. ¹H NMR spectra were recorded in CDCl₃ on a Bruker WM 400 MHz spectrometer, using TMS as an internal reference. Mass spectra were measured on Jeol JMS-300 spectrometer at 70 eV.

General procedure: A mixture of benzaldehyde or its derivative (**1a-c**) (0.05 mol), acetic anhydride (**2**) (7.5 g, 7 mL, 0.073 mol) and freshly fused and finely powdered sodium acetate (2.5 g, 0.03 mol) was irradiated with microwaves at 40 % (320 W) level in a Kenstar OM-20 ESP (800 W) unmodified domestic oven operating at 2450 MHz for 5 min. The mixture while still hot was poured into about 25 mL of water contained in 250 mL round-bottomed flask which had been fitted for steam distillation. A saturated aqueous solution of sodium carbonate was added with vigorous

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Conclusion

The reaction time for Perkin reaction is reduced to only 5 min by using microwave irradiation from 4-8 h of heating under reflux. The yield of the product is also improved.

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(Received: 1 August 2006;

Accepted: 4 May 2007)

AJC-5654