**II. Substituted (E)-1-(Furan-2-yl)-3-phenylprop-2-ene-1-one**.

(E)-1-(Furan-2-yl)-3-phenylprop-2-ene-1-one and its p-substituted compounds were prepared by the following procedure.

The mixture of the calculated amount of the pure 2-acetyl furan (0.55g ~ 0.005 moles) in cold ethanol and 10% solution of sodium hydroxide (catalytic amount) was cooled in an water bath to 0o C. to this mixture pure benzaldehyde (0.583 g ~ 0.0055 moles) in cold ethanol was added drop by drop for 30 minutes. The reaction mixture stirred for 2 hours. Then it was kept in refrigerator for overnight. The precipitated solid was collected and recrystallized using ethanol-chloroform (10:1) mixture.



All the substituted compounds were prepared by using the above procedure. All the compounds were characterized by 1H and 13C NMR spectral techniques.

**Substituent effects on the cyclic voltammetric reduction peak potentials of substituted (Z)-1-(furan-2-yl)-3-phenylprop-2-ene-1-ones.**

The applicability of the LFER to cyclic voltammetry is being examined in the present investigation. Therefore, measurements of the electrochemical parameters of para-substituted (E)-1-(Furan-2-yl)-3-phenylprop-2-ene-1-one have been made by using cyclic voltammetry technique.

The cyclic voltammetry technique is used to follow the reduction of these compounds, since cyclic voltammetry technique possesses merits over polarography.226

Cyclic voltagrams of substituted (Z)-1-(furan-2-yl)-3-phenylprop-2-ene-1-oneswere recorded. The sweep rate has been changed from 20 mVs-1  to 320 mVs-1  . Typical cyclic voltagrams at various sweep rates at constant concentration (10 mM) of (Z)-1-(furan-2-yl)-3-phenylprop-2-ene-1-one in acetonitrile is shown in fig. (2). The peak current ip is linearly related to the square root of sweep rate (v1/2) which is expected for a simple diffusion controlled process.

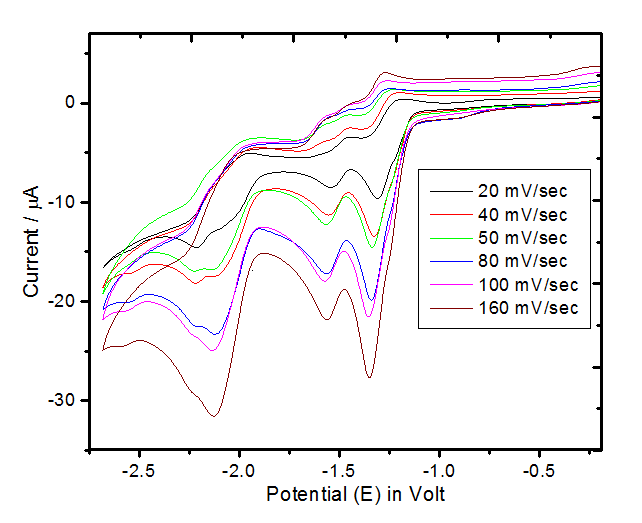


Fig. 2. Cyclic voltagram of (Z)-1-(furan-2-yl)-3-phenylprop-2-ene-1-one in acetonitrile at glassy

carbon electrode.

The cyclic voltagrams of (Z)-1-(furan-2-yl)-3-phenylprop-2-ene-1-one in acetonitrile at various concentrations at constant sweep rate (40 mM s-1) are shown in fig (3). The linear dependence of Ep vs log v for (Z)-1-(furan-2-yl)-3-phenylprop-2-ene-1-one in acetonitrile also confirms that the system corresponds to completely irreversible cyclic voltammetric pattern.

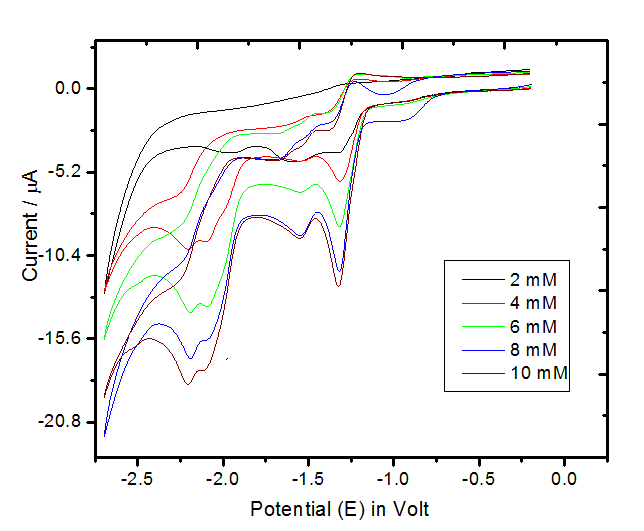


Fig. 3. Cyclic voltagram of (Z)-1-(furan-2-yl)-3-phenylprop-2-ene-1-one in acetonitrile at glassy

carbon electrode and at sweep rate 40 mV/s.

In order to understand the nature of the spices formed during the course of the reaction and to test the applicability of LFER, the cyclic voltagrams for various substituted (Z)-1-(furan-2-yl)-3-phenylprop-2-ene-1-ones at constant [substrate] and at various sweep rates were measured.

To apply the Hammett relation to the series, Ep and Ep1/2 of substituted (Z)-1-(furan-2-yl)-3-phenylprop-2-ene-1-ones at same concentration and at different sweep rates are correlated with Hammett constants.