SUPPORTING INFORMATION

Experimental section:

General:
All the chemicals were procured from either Sigma Aldrich Chemicals Pvt. Ltd. or Spectrochem, India. Silica gel (60-120 mesh) was used for chromatographic separation. Silica gel G [E-Merck (India)] was used for TLC. Petroleum ether refers to the fraction boiling between 60°C and 80°C. IR spectra were recorded on a Perkin-Elmer L 120-000A spectrometer ($\nu_{\text{max}}$ in cm$^{-1}$) on KBr disks. $^1$H NMR and $^{13}$C spectra were recorded on Bruker DPX-400 spectrometer in CDCl$_3$ (chemical shift in $\delta$) with TMS as internal standard. MS were recorded on a Q-TOF micro$^{\text{Tm}}$ instrument at the Indian Institute of Chemical Biology. CHN was recorded on 2400 series II CHN analyzer Perkin Elmer from the Chemistry Department of Kalyani University. Melting points were determined in open capillaries and are uncorrected.

General procedure for the synthesis of the compound 3a-j by Heck reaction: A mixture of 1a (100 mg, 0.395 mmol), cyclohexanone (2a, 77.5 mg, 0.79 mmol) and DABCO (132.7 mg, 1.185 mmol) were taken in N,N-dimethylformamide (DMF) (5 mL) under nitrogen atmosphere. Pd(OAc)$_2$ (10 mol%, 8.8 mg) was added to the reaction mixture and stirred at 120 °C for 4 h. After completion of the reaction as monitored by TLC, the reaction mixture was cooled, water (20 mL) was added and extracted with ethyl acetate (3 x 30 mL). The ethyl acetate extract was washed with water (2 x 40 mL), followed by brine (30 mL). The organic layer was dried (Na$_2$SO$_4$), and the solvent was evaporated to give a crude product. This was purified by column chromatography over silica gel (230-400 mesh) using petroleum ether and ethyl acetate (3:2) as an eluent. The product 3a was isolated as a white solid in 91 % yield. Similarly the other compounds 3b-j were prepared.

Compound 3a:
Yield: 91%, solid, m.p. 254-256 °C.
IR(KBr): $\nu_{\text{max}}$= 1637, 3305 cm$^{-1}$.
$^1$H-NMR (CDCl$_3$, 400 MHz): $\delta_{\text{H}}$ = 8.30 (d, 1H, $J$ = 9.5 Hz), 8.0 (s, 1H), 7.48 (d, 1H, $J$ = 9.0 Hz), 7.13 (d, 1H, $J$ = 9.0 Hz), 6.73 (d, 1H, $J$ = 9.5 Hz), 3.8 (s, 3H), 3.0 (bs, 2H), 2.8 (bs, 2H), 1.93 (bs, 4H).
\(^{13}\)C-NMR (DMSO+CDCl\(_3\), 100 MHz): \(\delta_C = 22.17, 23.13, 23.18, 23.41, 29.57, 107.28, 108.69, 112.51, 114.75, 118.38, 122.47, 130.57, 134.79, 135.60, 136.82, 160.65\)

MS: m/z = 253 (M\(^+\) + H)


**Compound 3b:**

Yield: 86%, solid, m.p. 240-242 °C.

IR(KBr): \(\nu_{\text{max}} = 1639, 3260\) cm\(^{-1}\).

\(^1\)H-NMR (CDCl\(_3\), 400 MHz): \(\delta_H = 8.07\) (d, 1H, \(J = 9.4\) Hz), 8.03 (s, 1H), 7.48 (d, 1H, \(J = 8.8\) Hz), 7.10 (d, 1H, \(J = 9.0\) Hz), 6.74 (d, 1H, \(J = 9.2\) Hz), 3.79 (s, 3H), 3.04-3.07 (m, 2H), 2.90-2.94 (m, 2H), 2.60-2.66 (m, 2H).

\(^{13}\)C-NMR (DMSO, 100 MHz): \(\delta_C = 25.02, 28.61, 29.00, 29.47, 106.93, 118.70, 121.46, 123.90, 127.62, 128.91, 131.75, 133.59, 136.02, 139.10, 160.81\)

MS: m/z = 239 (M\(^+\) + H)

Anal. Calcd. For C\(_{15}\)H\(_{14}\)N\(_2\)O: C, 75.61; H, 5.92; N, 11.76. Found: C, 75.80, H, 5.97, N, 11.54.

**Compound 3c:**

Yield: 89%, solid, m.p. = above 280 °C.

IR(KBr): \(\nu_{\text{max}} = 1641, 3310\) cm\(^{-1}\).

\(^1\)H-NMR (CDCl\(_3\), 400 MHz): \(\delta_H = 9.56\) (s, 1H), 8.33 (d, 1H, \(J = 9.6\) Hz), 7.53 (d, 1H, \(J = 8.8\) Hz), 7.11 (d, 1H, \(J = 9.2\) Hz), 6.71 (d, 1H, \(J = 9.6\) Hz), 3.81 (s, 3H), 3.16 (dd, 1H, \(J = 5.2, 15.2\) Hz), 2.84 (m, 2H), 2.59 (m, 2H), 2.00 (m, 2H), 1.18 (d, 3H, \(J = 6.4\) Hz).

MS: m/z = 267 (M\(^+\) + H).

Anal. Calcd. For C\(_{17}\)H\(_{18}\)N\(_2\)O: C, 76.66; H, 6.81; N, 10.52; Found: C, 76.66; H, 6.81; N, 10.52.

**Compound 3d:**

Yield: 82%, solid, m.p. 244-246 °C.

IR(KBr): \(\nu_{\text{max}} = 1639, 3314\) cm\(^{-1}\).

\(^1\)H-NMR (CDCl\(_3\), 400 MHz): \(\delta_H = 8.47\) (d, 1H, \(J = 9.6\) Hz), 8.09 (s, 1H), 7.50 (d, 1H, \(J = 8.8\) Hz), 7.16 (d, 1H, \(J = 9.2\) Hz), 6.76 (d, 1H, \(J = 9.6\) Hz), 3.82 (s, 3H), 2.83 (q, 2H, \(J =7.6\) Hz), 2.52 (s, 3H), 1.32 (t, 3H, \(J = 7.6\) Hz).
MS: m/z = 241 (M⁺ + H)
Anal. Calcd. For C₁₅H₁₆N₂O: C, 74.97; H, 6.71; N, 11.66 Found: C, 75.08; H, 6.83; N, 11.72

**Compound 3e:**
 Yield: 83%, solid, m.p. 206-208 °C.
IR(KBr): ν_max = 1705, 3256 cm⁻¹.
¹H-NMR (CDCl₃, 400 MHz): δ_H = 7.83 (s, 1H), 7.72 (d, 1H, J = 9.3 Hz), 7.30 (d, 2H, 10.8 Hz), 6.26 (d, 1H, J = 9.5 Hz), 2.75-2.78 (m, 2H), 2.68-2.71 (m, 2H), 1.89-1.93 (m, 4H).
¹³C-NMR (DMSO, 100 MHz): δ_C = 20.49, 22.20, 22.80, 23.05, 102.59, 108.46, 110.25, 113.27, 115.10, 122.12, 131.76, 138.13, 141.87, 145.76, 160.71
MS m/z = 240 (M⁺ + H)

**Compound 3f:**
 Yield: 80%, solid, m.p. 216-218 °C.
IR(KBr): ν_max = 1710, 3234 cm⁻¹.
¹H-NMR (CDCl₃, 400 MHz): δ_H = 7.99 (s, 1H), 7.71 (d, 1H, J = 9.5 Hz), 7.30 (d, 2H, J = 9.0 Hz), 6.26 (d, 1H, J = 9.4 Hz), 2.89-2.92 (m, 2H), 2.82-2.85 (m, 2H), 2.54-2.62 (m, 2H).
MS m/z = 226 (M⁺ + H)

**Compound 3g:**
 Yield: 82%, solid, m.p. 236-238 °C.
IR(KBr): ν_max = 1714, 3244 cm⁻¹.
¹H-NMR (CDCl₃, 400 MHz): δ_H = 8.30 (d, 1H, J = 9.6 Hz), 8.05 (s, 1H), 7.41 (d, 1H, 8.8 Hz), 7.08 (d, 1H, J = 8.8 Hz), 6.40 (d, 1H, J = 9.6 Hz), 3.08 (dd, 1H, J = 5.2 Hz, 15.2 Hz), 2.82-2.85 (m, 2H), 2.50-2.56 (m, 1H), 1.98-2.04 (m, 2H), 1.26 (s, 1H), 1.18 (d, 3H, J = 6.8 Hz).
MS m/z = 254 (M⁺ + H)
Anal. Calcd. For C_{16}H_{15}NO_2: C, 75.87; H, 5.97; N, 5.53; Found: C, 75.98; H, 6.11; N, 5.42.

**Compound 3h:**

Yield: 72%, solid, m.p. 138-140 °C.

IR(KBr): \( \nu_{\text{max}} = 1586, 2921, 3149 \text{ cm}^{-1} \).

\(^1\text{H}-\text{NMR} (\text{CDCl}_3, 400 \text{ MHz}): \) \( \delta_H = 9.20 \text{ (s, 1H)}, 8.17 \text{ (d, 1H, } J = 4.0 \text{ Hz), 7.72 \text{ (d, 1H, } J = 7.6 \text{ Hz), 6.99-7.02 \text{ (m, 1H)}, 2.77-2.80 \text{ (m, 2H), 2.67-2.70 \text{ (m, 2H), 1.86-1.97 \text{ (m, 4H).}}} \)

\(^{13}\text{C}-\text{NMR} (\text{CDCl}_3, 100 \text{ MHz}): \) \( \delta_C = 20.7, 23.0, 23.1, 23.2, 108.1, 114.8, 120.7, 125.5, 135.4, 140.5, 148.9. \)

MS m/z = 173 (M^+ + H)

Anal. Calcd. For C_{11}H_{12}N_2: C, 76.71; H, 7.02; N, 16.27. Found: C, 76.92, H, 7.05, N, 16.46.

**Compound 3i:**

Yield: 65%, solid, m.p. 154-156 °C.

IR(KBr): \( \nu_{\text{max}} = 1580, 2928, 3113 \text{ cm}^{-1} \).

\(^1\text{H}-\text{NMR} (\text{CDCl}_3, 400 \text{ MHz}): \) \( \delta_H = 9.41 \text{ (s, 1H), 8.15 \text{ (d, 1H, } J = 4.8 \text{ Hz), 7.71 \text{ (d, 1H, } J = 7.6 \text{ Hz), 7.00-7.03 \text{ (m,1H)}, 2.92-2.96 \text{ (m, 2H), 2.82-2.85 \text{ (m, 2H), 2.47-2.54 \text{ (m, 2H).}}} \)

\(^{13}\text{C}-\text{NMR} (\text{CDCl}_3, 100 \text{ MHz}): \) \( \delta_C = 24.76, 26.24, 27.89, 115.40, 116.92, 118.16, 126.09, 140.13, 144.48, 153.13 \)

MS: m/z = 159 (M^+ + H)

Anal. Calcd. For C_{10}H_{10}N_2: C, 76.18; H, 6.42; N, 17.88.

**Compound 3j:**

Yield: 70%, solid, m.p. 142-144 °C.

IR(KBr): \( \nu_{\text{max}} = 1582, 2920, 3122 \text{ cm}^{-1} \).

\(^1\text{H}-\text{NMR} (\text{CDCl}_3, 400 \text{ MHz}): \) \( \delta_H = 9.50 \text{ (s, 1H), 8.16 \text{ (d, 1H, } J = 4.4 \text{ Hz), 7.71 \text{ (d, 1H, } J = 7.6 \text{ Hz), 6.98-7.02 \text{ (m, 1H)}, 2.78-2.83 \text{ (m, 3H), 2.23-2.29 \text{ (m, 1H), 1.92-2.00 \text{ (m, 2H), 1.53-1.63 \text{ (m, 1H)}, 1.13 \text{ (d, 3H, } J = 6.8 \text{ Hz).}}} \)

MS: m/z = 187 (M^+ + H)

Anal. Calcd. For C_{12}H_{14}N_2: C, 77.38; H, 7.58; N, 15.04 Found: C, 77.45; H, 7.55; N, 15.12