Supporting Information
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Supporting Information

Synthesis of 2,4-Diarylquinoline Derivatives via Chloranil-Promoted Oxidative Annulation and One Pot Reaction

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1. **Re recyclability of Chloranil**

To demonstrate the feasibility to recycle Chloranil in the reactions, a separate experiment with o-allylaniline 1a (0.5 mmol, 147.7 mg) in presence of Chloranil (1.05 mmol, 258.2 mg) and DCE (3 mL) was conducted. After the reaction, chloroform (10 mL) was added to the mixture. The organic layer was washed with 2 N NaOH solution to extract tetrachlorohydroquinone completely, the aqueous layer was adjusted to pH 5-6 using 2 N HCl and extracted with ethyl acetate. The organic layer was combined, dried over Na₂SO₄, and concentrated under reduced pressure. TCHQ was obtained as yellow solid in 234.2 mg, 90% yield, m.p. 236-237 °C (lit.¹ 235-236 °C).²

![Chemical structure of TCHQ and Chloranil](image)

TCHQ (234.2 mg, 0.9448 mmol) was stirred under dilute nitric acid 72% HNO₃: H₂O (1:1) conditions to provide Chloranil in 206.8 mg, 89% yield, for reuse. Chloranil was obtained as yellow powder, m.p. 289-291 °C (lit.² 282-284 °C).³
2. One pot process to 2,4-diarylquinones

![Diagram](attachment:image.png)

**Table 3. One pot process to 2,4-diarylquinolines**

<table>
<thead>
<tr>
<th>Entry</th>
<th>Ar</th>
<th>R</th>
<th>Product</th>
<th>Yield (%)</th>
<th>Time (h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C₆H₅</td>
<td>4-CH₃</td>
<td>2a</td>
<td>77</td>
<td>10min+1h+2h</td>
</tr>
<tr>
<td>2</td>
<td>C₆H₅</td>
<td>4-CH₃</td>
<td>2a</td>
<td>87</td>
<td>10min+1h+2h</td>
</tr>
<tr>
<td>3</td>
<td>C₆H₅</td>
<td>4-CH₂O</td>
<td>2b</td>
<td>61</td>
<td>10min+1h+1h</td>
</tr>
<tr>
<td>4</td>
<td>C₆H₅</td>
<td>4-F</td>
<td>2c</td>
<td>74</td>
<td>10min+1h+2h</td>
</tr>
<tr>
<td>5</td>
<td>C₆H₅</td>
<td>4-Cl</td>
<td>2d</td>
<td>65</td>
<td>10min+1h+1h</td>
</tr>
<tr>
<td>6</td>
<td>C₆H₅</td>
<td>4-Br</td>
<td>2e</td>
<td>70</td>
<td>10min+1h+1h</td>
</tr>
<tr>
<td>7</td>
<td>C₆H₅</td>
<td>2,4-(CH₃)₂</td>
<td>2g</td>
<td>89</td>
<td>10min+1h+1h</td>
</tr>
<tr>
<td>8</td>
<td>4-CH₃C₆H₄</td>
<td>4-CH₃</td>
<td>2j</td>
<td>67</td>
<td>10min+1h+1h</td>
</tr>
<tr>
<td>9</td>
<td>3-CH₃C₆H₄</td>
<td>4-CH₃</td>
<td>2k</td>
<td>66</td>
<td>10min+1h+1h</td>
</tr>
<tr>
<td>10</td>
<td>2-CH₃C₆H₄</td>
<td>4-CH₃</td>
<td>2l</td>
<td>36</td>
<td>10min+1h+2h</td>
</tr>
<tr>
<td>11</td>
<td>4-FC₆H₄</td>
<td>4-CH₃</td>
<td>2m</td>
<td>67</td>
<td>10min+1h+2h</td>
</tr>
</tbody>
</table>

* a 3 (0.55 mmol), 4 (0.5 mmol), DDQ (0.55 mmol), DCE (3 mL), r.t., 10 min; FeCl₃ (0.025 mmol), 80 °C, 1 h; Chloranil (1.05 mmol), 80 °C, 1-2 h. b Isolated yield. c 1,4-Dioxane (3 mL) as solvent.
3. $^1$H NMR and $^{13}$C NMR spectra of all products 2

6-methyl-2,4-diphenylquinoline (2a)
6-methoxy-2,4-diphenylquinoline (2b)
6-fluoro-2,4-diphenylquinoline (2c)
6-chloro-2,4-diphenylquinoline (2d)
6-bromo-2,4-diphenylquinoline (2e)
6-nitro-2,4-diphenylquinoline (2f)
6,8-dimethyl-2,4-diphenylquinoline (2g)
6,8-dimethoxy-2,4-diphenylquinoline (2h)
6,7-dimethoxy-2,4-diphenylquinoline (2i)
6-methyl-2,4-di-p-tolylquinoline (2j)
6-methyl-2,4-di-m-tolylquinoline (2k)
6-methyl-2,4-di-o-tolylquinoline (21)
2,4-bis(4-fluorophenyl)-6-methylquinoline (2m)
2,4-bis(4-chlorophenyl)-6-methylquinoline (2n)
2,4-bis(4-bromophenyl)-6-methylquinoline (20)
2,4-bis(3-chlorophenyl)-6-methylquinoline (2p)
Mixture of 4-(4-chlorophenyl)-6-methyl-2-phenylquinoline and 2-(4-chlorophenyl)-6-methyl-4-phenylquinoline as 3:4 (2q)
Mixture of 6-methyl-4-phenyl-2-(p-tolyl)quinoline and 6-methyl-2-phenyl-4-(p-tolyl)quinoline as 3:1 (2r)
4. **Reference**