Formylation of Aryl Iodides with CO₂ Using Palladium on Carbon

Significance: Palladium on carbon (Pd/C) catalyzed the formylation of aryl iodides in the presence of poly(methylhydrosiloxane) (PMHS) and 1,8-diazabicyclo[5.4.0]undec-7-ene (DBU) under a CO₂ atmosphere in acetonitrile to give aryl aldehydes in up to 81% yield (20 examples).

Comment: The formylation of aryl iodides to aryl aldehydes using CO₂ as a C₁ resource was achieved. The authors previously reported the cyclization of ortho-phenylenediamines to benzimidazoles (Green Chem. 2013, 15, 95) and 2-aminothiophenol to benzothiazolone (ACS Catal. 2013, 3, 2076) using CO₂ as a C₁ resource.

Selected examples:

- **PhI** → **PhCHO**
  - 77% yield

- **PhI** → **PhCHO**
  - 71% yield

- **PhI** → **PhCHO**
  - 66% yield

- **PhI** → **PhCHO**
  - 62% yield

- **PhI** → **PhCHO**
  - 60% yield

- **PhI** → **PhCHO**
  - 81% yield

- **PhI** → **PhCHO**
  - 64% yield

- **PhI** → **PhCHO**
  - 60% yield

- **PhI** → **PhCHO**
  - 57% yield

- **PhI** → **PhCHO**
  - 12% yield