Silica-supported silver nitrate as a highly active dearomatizing spirocyclization catalyst: Synergistic alkyne activation by silver nanoparticles and silica


Spirocyclization of Alkyne-Tethered Aromatics with Silver Nitrate/Silica

**Significance:** Silica-supported silver nitrate (AgNO₃/SiO₂) catalyzed the dearomatizing spirocyclization of alkyne-tethered aromatics to give the corresponding spirocycles in 86–100% yield (eqs. 1–4).

**Comment:** The continuous-flow reaction of 1-(1H-indol-3-yl)-4-phenylbut-3-yn-2-one on a column of AgNO₃/SiO₂ gave 5-phenyl-3H-spirocyclopent-4-ene-1,3'-indol]-3-one in quantitative yield (eq. 5).

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**Indoles:**

**Phenols:**

**Pyrroles:**

**Comment:** The continuous-flow reaction of 1-(1H-indol-3-yl)-4-phenylbut-3-yn-2-one on a column of AgNO₃/SiO₂ gave 5-phenyl-3H-spirocyclopent-4-ene-1,3'-indol]-3-one in quantitative yield (eq. 5).