Annulation Reactions Catalyzed by Amberlite-Bound Hexafluorophosphate

Significance: Amberlite resin-bound hexafluorophosphate (Amberlite-PF₆) was prepared by treatment of Amberlite 900 with aqueous NaPF₆ (eq. 1). In the presence of Amberlite-PF₆, the annulation of phenylenediamines **1** with aldehydes **2** took place to give the corresponding benzimidazoles **3** (25 examples, 72–96% yield).

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Comment: The binding of hexafluorophosphate on Amberlite resin was confirmed by IR spectra (557 and 832 cm^{−1}), though other characterizations were not given. Phenylenediamines **1** also reacted with α-bromoketones **4** in the presence of Amberlite-PF₆ to give the corresponding quinoxalines **5** via an aromatization step.