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Chemical Reagent Free Synthesis of Benzoxazole Derivatives by One-Pot Reaction

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The five-membered N,O-heteroatom ring of benzoxazole is an important moiety due to the biological or physical properties. Various natural products, pharmaceutical drugs, photochromic materials, mesogenic polymers and liquid crystals contain such skeleton. Oxidative coupling[1], cross coupling[2] and condensation reactions are the most common pathways for the synthesis of benzoxazole ring, which require transition-metal catalysts, chemical oxidants, strong acids or reactive chemical reagents. The resulting toxic chemical wastes cause pollutions to our environment.

Based on Green Chemistry Principles, we developed a new clean pathway to synthesize benzoxazole ring. One-pot reaction from 2-aminophenol, aldehydes and molecular sieve obtains benzoxazole ring directly. No additional chemical reagents are needed. This reduces the usage of harmful chemical reagents and lowers the production of hazardous chemical wastes. The newly developed reaction was further applied in the green synthesis of potential anticancer drugs. Detail information will be discussed in the meeting.

References:

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