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(57) Abstract :

A solvent-free, one-pot synthesis process is provided for preparing triazole-linked glycoconjugates directly from peracetylated glycosyl bromide. The method combines sodium azide, a terminal alkyne, and a copper catalyst system including copper sulfate pentahydrate, sodium ascorbate, and copper powder in a reaction mixture that is subjected to ball milling at approximately 800 rpm for 2 to 4 hours in a tungsten carbide cup with tungsten carbide balls. The mechanical energy induces conversion via either an in-situ formation of glycosyl azide and subsequent copper-catalyzed azide-alkyne cycloaddition or formation of a 1,2,3-triazole intermediate that reacts directly with the glycosyl bromide, offering a versatile and efficient pathway for synthesizing glycoconjugates and glycolipids.

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