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# Preparation of glycosyl thiourea derivatives from glycosyl azides using sulfamic acid and sodium iodide in one-pot

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**Abstract:** Novel one-pot reaction conditions have been developed for the preparation of glycosyl thiourea derivatives directly from glycosyl azides mediated by a combination of sulfamic acid and sodium iodide. The reaction conditions were clean, non-toxic and the products were isolated in good to excellent yield.

**Keywords:** Carbohydrate; azide; thiourea; reduction; sulfamic acid; sodium iodide; isothiocyanate.

## 1. Introduction

Thiourea derivatives are important class of molecules having versatile chemical and biological applications.<sup>1</sup> They have been used in therapeutics as antioxidant,<sup>2</sup> anti-bacterial,<sup>3</sup> anti-inflammatory,<sup>4</sup> anti-parasitic,<sup>5</sup> anti-HIV,<sup>6</sup> anti-tubercular,<sup>7</sup> rodenticide,<sup>8</sup> anti-cancer agents,<sup>9</sup> anti-fungal agents<sup>10</sup> etc. Thiourea derivatives have been used as agrochemicals such as insect growth regulator,<sup>11</sup> and herbicides.<sup>12</sup> They have also wide applications in the chemical synthesis of heterocycles and other organic molecules.<sup>13,14</sup> In the recent past, thiourea derivatives have been applied as organocatalysts and ligands in a variety of asymmetric organic reactions.<sup>15,16</sup> In addition, they have been applied as chemical sensors for the detection of heavy metals<sup>17</sup> and in polymer synthesis.<sup>18</sup>

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