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Synthesis and biological evaluation of new 3,5-di(trifluoromethyl)-1,2,4-triazolesulfonylurea and thiourea derivatives as antidiabetic and antimicrobial agents

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ABSTRACT

Fluorinated 1,2,4-triazoles **3** and benzenesulfonyl urea and thiourea derivatives as well as their cyclic sulfonylthioureas **4**–**10** were prepared as antimicrobial agents. The chemistry involves the condensation of sulfanilamide derivatives **1** with trifluoroacetic anhydride to give *N*-di(trifluoroacetyl)sulfonamides **2** which upon reaction with hydrazine hydrate afforded the corresponding triazole derivatives **3**. Reaction of triazole derivative **3a** with isocyanates and isothiocyanates gave the corresponding ureas **4** and thioureas **5**. Cyclization of thiourea derivatives with ethyl bromoacetate, 1,2-diiodoethane, diethyl oxalate and α-bromoacetophenone derivatives yielded the corresponding 4-oxothiazolidines **7**, thiazolidines **8**, 4,5-dioxothiazolidines **9** and thiazolines **10**. Preliminary biological screening of the prepared compounds revealed significant antimicrobial and mild antidiabetic activities.