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.

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