Synthesis of N-tetra-O-acetyl-?-d-glucopyranosyl-N?-(4?,6?-diarylpyrimidin-2?-yl)thioureas

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Abstract: Some 2-amino-4,6-diarylpyrimidines 2 have been prepared from substituted benzylideneacetophenones and guanidine hydrochloride in the presence of alkali by conventional heating in alcoholic medium and microwave heating in solvent-free conditions. N-(2,3,4,6-Tetra-O-acetyl-?-d-glucopyranosyl)-N?-(4?,6?-diarylpyrimidin-2?-yl)thioureas 4 have been synthesized by reaction of per-O-acetylated glucopyranosyl isothiocyanate 1 and substituted 2-amino-4,6-diarylpyrimidines 2. Two different methods have been used, namely, refluxing in anhydrous dioxane and solvent-free microwave-assisted coupling. The second procedure afforded higher yields in much shorter reaction times. The compounds 2 and 4 were tested for their antibacterial and antifungal activities in vitro against Staphylococcus epidermidis, Enterobacter aerogenes and Candida albicans by disc diffusion method.

Author Keywords: Glucopyranosyl isothiocyanate; Glucopyranosyl thiourea; Microwave-assisted method; Pyrimidine

Index Keywords: Antibacterial and antifungal activity; Candida albicans; Conventional heating; Diffusion method; Enterobacter aerogenes; Glucopyranosyl isothiocyanate; Glucopyranosyl thiourea; Guanidine hydrochloride; Higher yield; In-vitro; Isothiocyanates; Microwave-assisted; Microwave-assisted method; Pyrimidine; Reaction time; Refluxing; Second procedures; Solvent free; Solvent free conditions; Staphylococcus epidermidis; Amination; Amines; Ethers; Heating; Microwaves; Synthesis (chemical); Urea; Thioureas; 2 amino 4 (2 hydroxyphenyl) 6 phenylpyrimidine; 2 amino 4 (3 chlorophenyl) 6 phenylpyrimidine; 2 amino 4 (3 methoxyphenyl) 6 phenylpyrimidine; 2 amino 4 (4 bromophenyl) 6 phenylpyrimidine; 2 amino 4 (4 chlorophenyl) 6 phenylpyrimidine; 2 amino 4 (4 fluorophenyl) 6 phenylpyrimidine; 2 amino 4 (4 isoprophenyl) 6 phenylpyrimidine; 2 amino 4 (4 methoxyphenyl) 6 phenylpyrimidine; 2 amino 4 (4 methylphenyl) 6 phenylpyrimidine; 2 amino 4,6 diphenylpyrimidine; alkali; antifungal agent; antiinfective agent; chalcone derivative; guanidine; n (2,3,4,6 tetra o acetyl beta dexro glucopyranosyl) n' (4',6' diphenylpyrimidin 2' yl)thiourea; n (2,3,4,6 tetra o acetyl beta dexro glucopyranosyl) n' [4' (2 hydroxyphenyl) 6' phenyl pyrimidin 2' yl]thiourea; n (2,3,4,6 tetra o acetyl beta dexro glucopyranosyl) n' [4' (3 chlorophenyl) 6' phenyl pyrimidin 2' yl]thiourea; n (2,3,4,6 tetra o acetyl beta dexro glucopyranosyl) n' [4' (3 methoxyphenyl) 6' phenyl pyrimidin 2' yl]thiourea; n (2,3,4,6 tetra o acetyl beta dexro glucopyranosyl) n' [4' (4 bromophenyl) 6' phenyl pyrimidin 2' yl]thiourea; n (2,3,4,6 tetra o acetyl beta dexro glucopyranosyl) n' [4' (4 chlorophenyl) 6' phenyl pyrimidin 2' yl]thiourea; n (2,3,4,6 tetra o acetyl beta dexro glucopyranosyl) n' [4' (4 fluorophenyl) 6' phenyl pyrimidin 2' yl]thiourea; n (2,3,4,6 tetra o acetyl beta dexro glucopyranosyl) n' [4' (4 isopropylphenyl) 6' phenyl pyrimidin 2' yl]thiourea; n (2,3,4,6 tetra o acetyl beta dexro glucopyranosyl) n' [4' (4 methoxyphenyl) 6' phenyl pyrimidin 2' yl]thiourea; n (2,3,4,6 tetra o acetyl beta dexro glucopyranosyl) n' [4' (4 methylphenyl) 6' phenyl pyrimidin 2' yl]thiourea; n tetra o

acetyl beta dextro glucopyranosyl ' (4',6' diarylpyrimidin 2' yl)thiourea derivative; pyrimidine derivative; thiourea derivative; unclassified drug; acetylation; antibacterial activity; antifungal activity; article; Candida albicans; chemical procedures; chemical reaction; disk diffusion; drug activity; drug structure; drug synthesis; Enterobacter aerogenes; in vitro study; microwave cooking; nonhuman; priority journal; reaction time; Staphylococcus epidermidis; Acetylglucosamine; Anti-Bacterial Agents; Antifungal Agents; Candida albicans; Enterobacter aerogenes; Microbial Sensitivity Tests; Pyrimidines; Staphylococcus epidermidis; Thiourea; Candida albicans; Enterobacter aerogenes; Staphylococcus epidermidis; Tetra

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