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Microwave Assisted Synthesis of 2,3-Dihydro-4*H*-benzo[4,5]thiazolo[3,2-*a*]furo[2,3-*d*]pyrimidin-4-ones and 6,7-Dihydro-5*H*-furo[2,3-*d*]thiazolo[3,2-*a*]pyrimidin-5-ones Using Mn(OAc)₃

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Microwave Assisted Synthesis of 2,3-Dihydro-4H-benzo[4,5]thiazolo[3,2-a]furo[2,3-d]pyrimidin-4-ones and 6,7-Dihydro-5H-furo[2,3-d]thiazolo[3,2-a]pyrimidin-5-ones Using Mn(OAc)₃

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Abstract

2-Hydroxy-4H-benzo[4,5]thiazolo[3,2-a]pyrimidin-4-one **2a** and 7-hydroxy-5H-thiazolo[3,2-a]pyrimidin-5-one **2b**, were obtained in high yields under mild conditions from the cyclization reactions of bis-(2,4,6-trichlorophenyl) malonate and 2-aminobenzothiazole or 2-aminothiazole, respectively. A new class of compounds, 2,3-dihydro-4H-benzo[4,5]thiazolo[3,2-a]furo[2,3-d]pyrimidin-4-ones and 6,7-dihydro-5H-furo[2,3-d]thiazolo[3,2-a]pyrimidin-5-ones, were synthesized *via* the microwave assisted radical addition of compounds **2a** and **2b** to various alkenes using manganese(III) acetate. A preliminary acetylcholine esterase (AChE) inhibition test of compound **4e** showed excellent (92%) inhibitory potential, comparable with the standard drug Donapezil®.

Keywords: manganese(III) acetate; radical addition; cyclization; microwave; single crystal X-ray analysis; AChE inhibition

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Introduction

Heterocyclic ring systems such as thiazole, benzothiazole, benzothiazolopyrimidine, thiazolopyrimidine and dihydrofuran form the skeletal structures of molecules displaying a wide-range of biological activities. Thiazole and benzothiazole containing compounds have been reported to show antitumor, antimicrobial, anthelmintic, anti-leishmanial, anticonvulsant and anti-inflammatory effects.¹ Additionally, aminophenazole is used as an antidote for barbiturates and opiates,² chlormethiazole shows sedative and hypnotic effects³ and amthamine is a histamine agonist.⁴ Ritanserin⁵ and setoperone⁶ are thiazolopyrimidine containing drugs used in the treatment of psychological diseases. Additionally, many

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