



RESEARCH ARTICLE

SYNTHESIS AND BIOLOGICAL EVALUATION OF CLUBBED TRIAZOLE-THIAZOLIDINONE DERIVATIVES

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In the present work, sixteen novel 3-(2-(4-(4-substituted benzylideneamino)-5-phenyl-4H-1,2,4-triazol-3-ylthio)acetyl)-2-(arylimino)thiazolidin-4-one (10a-p) derivatives were synthesized by clubbing 3-(2-chloroacetyl)-2-(arylimino)thiazolidin-4-one derivatives (4a-h) with SH group of triazole Schiff bases (9a-b). The structures of the newly synthesized compounds were confirmed by analytical and spectral methods (¹H NMR and IR). The biological potential of newly synthesized compounds was investigated through hydrogen peroxide scavenging assay, anthelmintic activity and *in vitro* α -amylase inhibition activity. Among synthesized compounds, 10i showed the most potent hydrogen peroxide scavenging activity 71.44%, 72.32% and 73.99% at different concentrations 10 μ g/ml, 30 μ g/ml, and 50 μ g/ml respectively. Compound 10f showed the most potent anthelmintic activity with mean paralysis time 5.20 \pm 0.05 min and mean death time 7.64 \pm 0.16 min. Highest α -amylase inhibition activity 92.17% was exhibited by compound 10j.

Key words: Thiazolidin-4-one, 1,2,4-triazoles, Schiff's base, Hydrogen peroxide scavenging assay.

INTRODUCTION

Heterocyclic systems have been enriched with pharmacological activities since ancient times (Kumar, 2011; Mehta and Pathak, 2011; Dahiya and Mourya, 2013; Pareta *et al* 2013; Nusrat *et al* 2014). Among the heterocyclics, thiazolidin-4-one is a biologically important scaffold known to be associated with several biological activities such as antimicrobial (Deep *et al* 2014), anticancer (Wang *et al* 2012), antidiabetic (Ottana *et al* 2012) analgesic, anti-inflammatory (Deep *et al* 2012), hydrogen peroxide scavenging activity (Sharma *et al* 2011) and anticonvulsant activity (Kaur *et al* 2012) etc. Another five membered heterocycles like 1,2,4-triazole and their derivatives constitute an important class of compounds which act as a core nucleus of various therapeutically important drugs. Triazole derivatives also exhibit a broad array of

agricultural, industrial and biological activities. The synthesis of these heterocycles has received considerable attention in recent years and several 1,2,4-triazole derivatives have been reported for diverse biological activities. Schiff bases of 1,2,4-triazoles have also been found to possess extensive biological activities (Kharb *et al* 2011; Singhal *et al* 2011; Chandermauli *et al* 2012).

Design of new bioactive agents with the development of hybrid molecules through the combination of different pharmacophores in the same structure may lead to compounds having more efficiency in biological response. The interesting biological properties of these two classes of compounds inspired us to synthesize new compounds with both moieties clubbed together with a hope of improved biological potential. Hence in the present study, we report