

Synthesis of new thiazolidinone derivatives of naproxen

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Background and Aims: There are many nonsteroidal anti-inflammatory drugs (NSAIDs) on the market and there is still a need for new research focusing on these drugs due to their serious side effects including gastric toxicity and kidney damage. Therefore, investigations on new anti-inflammatory agents devoid of serious side effects are still a challenge and the goal of many researchers.

As a part of our efforts to develop new anti-inflammatory agents and on the basis of some reports about the anti-inflammatory activities of thiazolidinone compounds with a safer profile of action, new thiazolidinone derivatives of naproxen (a known drug) were synthesized.

Methods: Esterification of naproxen in methanol afforded methyl ester of naproxen 1. Reaction of 1 with hydrazine hydrate gave hydrazide derivative 2. The hydrazone intermediates 3 were synthesized by stirring of 2 with different aromatic aldehydes. The thiazolidinone compounds 4a-4h were synthesized by the reaction of 3 with thioglycolic acid.

Results: The purity of target compounds was confirmed by TLC. The structures of target compounds were confirmed by IR, ¹H-NMR and Mass spectra.

Conclusions: Because of the existence of two hybrid anti-inflammatory pharmacophores (naproxen scaffold and thiazolidinone ring) in the synthesized compounds, their anti-inflammatory activity is probable.

Keywords: Naproxen; Thiazolidinone; Analgesic; Antiinflammatory