World Academy of Science, Engineering and Technology
International Journal of Pharmacological and Pharmaceutical Sciences
Vol:10, No:12, 2016

Synthesis and Analgesic activity of 2-(p-Substituted phenyl)-3-[4-(N-Substituted amino) methyl-2-oxo indoilin-3-ylidene]benzenesulfonyl Quinazolin-4(3H)-One Derivatives

Authors : N. Gopal, K. Jaasminerjiit, L. Z. Xiang

Abstract : Quinazoline-4(3H)-one ring system has been consistently regarded as promising privileged structural icon owing to its pharmacodynamic versatility in many of its synthetic derivatives as well as in several naturally occurring alkaloids. The literature reveals that 2nd & 3rd positions of the quinazolin-4(3H)-one pharmacophore are the target for substitution with other moieties. On the other hand, sulphanilamide derivatives and isatin moiety also displayed valuable biological activities. Hence, it was thought worthwhile to study the effects of three pharmacophoric moieties like quinazolinone, sulphanilamide and isatin in a single molecule for the better analgesic activity with lower toxicity. Series of novel 2,3-disubstituted quinazolin-4(3H)-one derivatives have been synthesised from the intermediate Schiff base of 2-(4'-substitutedphenyl)-3-[(N-2-oxoindolin-3-ylidene)-4"-sulphonamidophenyl]-quinazolin-4(3H)-one derivatives, which was prepared from reacting 2-(substituted phenyl)-4H-benzo[d][1,3]-oxazin-4-one with sulphanilamide. The required benzoxazinone derivatives were prepared by reacting anthranilic acid with benzoyl chloride. All the compounds structure was characterised by using H1 NMR, IR and Mass spectroscopy. The intermediate Schiff base and final Mannich base compounds were evaluated for their analgesic activity by acetic acid-induced writhing method at the dose of 25mg/kg, 50 mg/kg, and 100 mg/kg (bw) and Diclofenac (25mg/kg of body weight) will be used as the reference drugs. From the results of the study, it has been observed that final Mannich base showed a better analgesic activity when compared to the parent Schiff bases, it was found that compound substituted with N-methyl piperazine at 1st position of the indole nucleus of the final quinazolinone derivatives (GA4B1) i.e. 2-(4'-methoxy phenyl)-3-[4-(N-(1-N-methyl piperazine amine) methyl-2-oxo indoilin-3-ylidene] benzenesulfonyl quinazolin-4(3H)-one increases the analgesic activity and among the synthesised compounds, GA4B1 exhibited quite superior analgesic activity. The remaining Schiff bases and Mannich base derivatives exhibited moderate analgesic activity. All the compounds showed a dose dependent activity. None of the synthesised compound showed ulcer index whereas the standard drug, diclofenac [25 mg/kg (bw)] showed significantly higher gross ulcer index values.

Keywords : analgesic activity, isatin, mannich base, quinazolin-4(3H)-one
Conference Title : ICBPMC 2016 : International Conference on Biochemical Pharmacology and Medicinal Chemistry
Conference Location : Sydney, Australia
Conference Dates : December 15-16, 2016