—Regular Article—

Synthesis, Anti-inflammatory and Analgesic Evaluation of Thioxoquinazolinone Derivatives

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A series of 3-substituted-2-thioxoquinazolin-4(3*H*)-one derivatives have been synthesized and their structures have been elucidated on the basis of IR, ^{1}H-NMR, elemental analysis and mass spectroscopic studies. Anti-inflammatory and analgesic activity of the synthesized compounds was evaluated by Carrageenan induced rat paw edema method and Eddy's hot plate method respectively. Among the synthesized compounds *N*-(4-hydroxyphenyl)-*N*-(4-oxo-3-phenyl-2-thioxo-3,4-dihydroquinazolin-1(2*H*)methyl)acetamide (PTQ01) showed excellent anti-inflammatory activity. *N*-(4-ethoxyphenyl)-*N*-(3-(naphthalen-2yl)-4-oxo-2-thioxo-3,4-dihydroquinazolin-1(2*H*)-yl)methyl)acetamide (NTQ02), *N*-(4-Hydroxyphenyl)-*N*-((3-naphthalen-2-yl)-4-oxo-2-thioxo-3,4-dihydorquinazolin-1(2*H*)-ylmethyl)acetamide (NTQ01), *N*-((3-(4-ethoxyphenyl)-4-oxo-2-thioxo-3,4-dihydoquinazolin-1(2*H*)-yl)methyl)-*N*-(4-hydroxyphenyl)acetamide (ETQ01) *N*-(3-(4-ethoxyphenyl)-4-oxo-2thioxo-3,4-dihydroquinazolin-1(2*H*)-ylmethyl)-*N*-(4-hydroxyphenyl) acetamide (ETQ04), *N*-(4-ethoxyphenyl)-*N*-((4-oxo-3-phenyl-2-thioxo-3,4-dihydoquinazolin-1(2*H*)-yl)methyl)acetamide (PTQ02) and *N*-(4-ethoxyphenyl)-*N*-(3-(4-ethoxyphenyl)-4-oxo-2-thioxo-3,4-dihydoquinazolin-1(2*H*)-yl) methyl)acetamide (ETQ02) at a dose of 20 mg/kg exhibited significant anti-inflammatory activity compared to that of standard drug diclofenac sodium. The compound 2-(2,3-dimethylphenyl)(3-(4-ethoxyphenyl)-4-oxo-2-thioxo-3,4-dihydroquinazolin-1-2H)-1ylmethylamino)benzoic acid PTQ03 and sodium 2-(2-((2,6-dichlrophenyl)(3-(4-oxo-2-thioxo-3,4-dihydroquinazolin-1(2*H*)-yl)methyl)amino)phenylacetate (PTQ04) showed moderate anti-inflammatory activity. The compounds PTQ01, PTQ02, PTQ04, ETQ01 and ETQ02 showed significant analgesic activity compared with that of standard drug pentazocin.

Key words——thioxoquinazolinone; analgesic; anti-inflammatory; ulcerogenic

INTRODUCTION

Quinazolinone derivatives represent one of the most active classes of compounds possessing a wide variety of biological activities *viz*. anti-parkinsonism,[1] anti-convulsant,[2,3] hypoglycemic,[4] anti-HIV,[5] anthelminthic,[6] antibacterial,[7,8] anticancer,[9] CNS depressant,[10] neuroleptic,[11] hypnotic[12] and analgesic[13] activity. We have synthesized and evaluated anticonvulsant and antimicrobial activity for a series of 3-phenyl-2-thioxo-2,3-dihydroquinazolin-4(1*H*)-ones and 3-napthyl-2-thioxoquinazolin-4-(3*H*) ones. In continuation of our work on these heterocycles with biological interest, we describe the synthesis and evaluation of analgesic, anti-inflammatory and ulcerogenic activities of some novel thioxoquinazolinones.

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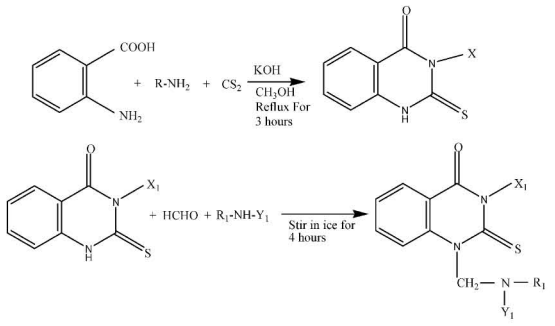
MATERIALS AND METHODS

Step 1. Synthesis of 3-substituted-2-thioxoquinazolin-4(3*H*)one[14,15] A mixture of carbon disulfide (30 mmoles) and the appropriate aromatic amines (12 mmoles) was added drop wise to the refluxed mixture of anthranilic acid (10 mmoles) and potassium hydroxide (12 mmoles) in methanol (10 ml). The mixture was heated under reflux for 3 h and the solid produced was filtered, washed with methanol and dried. The solid obtained was dissolved in potassium hydroxide solution (10% w/v, 10 ml), filtered and then conc. HCl was added to the filtrate. The white precipitate obtained was filtered, washed with water and dried. The crude product obtained was recrystallized from absolute ethanol (Scheme 1).

Step 2. Synthesis of Thioxoquinazolinone Derivatives by Mannich Reaction Various 3-substituted-2-thioxoquinazolin-4-(3*H*)-ones (80 mmoles) prepared in step 1 was dissolved in methanol in ice cold conditions. *p*-Hydroxy acetanilide, *p*-ethoxy



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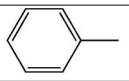
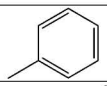
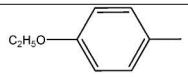
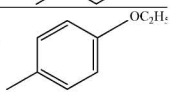
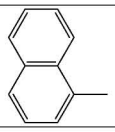
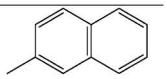
PTQ		
ETQ		
NTQ		

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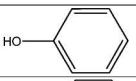
PTQ01		$-COCH_3$	
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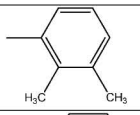
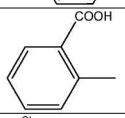
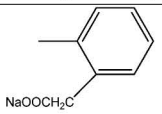
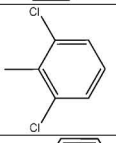
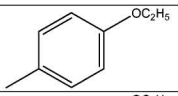
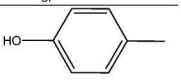
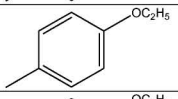
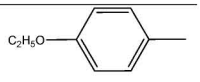
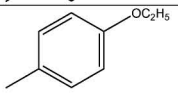
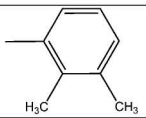
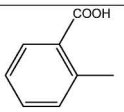
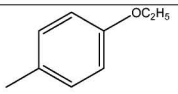
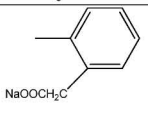
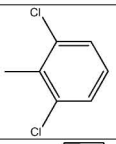
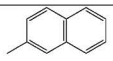
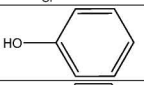
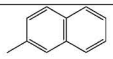
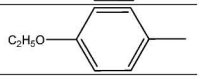
PTQ03			
PTQ04			
ETQ01		$-COCH_3$	
ETQ02		$-COCH_3$	
ETQ03			
ETQ04			
NTQ01		$-COCH_3$	
NTQ02		$-COCH_3$	

Scheme 1.

acetanilide, N (2, 3 xylyl) anthranilic acid, Sodium [*o*-(2,6-dichloroanilino) phenyl] acetate, 80 mmoles each separately was added in a small quantity with constant stirring by using magnetic stirrer under ice cold conditions. A measured quantity of formaldehyde solution (80 mmoles) was added slowly with constant stirring for 4 h. The contents of the beaker were kept over night in a freezer. The crystallized product was filtered and dried. The crude product obtained was recrystallised from methanol (Scheme 1).

Melting points were determined in open capillaries in the electrical melting point apparatus and are uncorrected. Purity of the compounds was checked on silica gel coated Merck-TLC plates using water, chloroform, acetone and benzene as mobile phase. Visualization of spots was carried out in an iodine chamber. The structure of the synthesized compounds was elucidated from FT-IR (Shizamadu-8400 series) spectra in KBr disc and ^{1}H-NMR (Brucker-400 MHz) spectra in DMSO-d_6. Mass spectra were recorded on Jeol JMS-DX 303 Mass spectrophotometer and Finnegan MAT 8230 Mass spectrometer. Elemental analysis was performed on Heraeus Carlo Erba 1108 and the analyses indicated by the symbols of the elements were within $\pm 0.4\%$ of theoretical values (Table 1).

PTQ01; IR (KBr disc) cm^{-1} 2886 (-CH_2- Str), 1656 (C=O Str), 1324 (Ar-OH), 1170 (C=S Str), 684 (Ar- region). **^{1}H-NMR (DMSO-d_6)** 1.9 (s, 3H, $\underline{COCH_3}$), 3.1 (s, 2H, CH_2), 6.4–7.6 (m, 13H, Ar-H), 5.0 (s, 1H, OH) **MS *m/z*** 418 $[M+1]^+$, 417 $[M]^+$; Anal. Calcd for $C_{23}H_{19}N_3O_3S$ (417.42). C, 66.17; H, 4.59; N, 10.06. Found: C, 66.37; H, 4.39; N, 10.16.

PTQ02; IR (KBr disc) cm^{-1} 2927 (-CH_2- Str), 1660 (C=O Str), 1446 (CH_3). 1110 (-C-O-C), 1172 (C=S Str). **^{1}H-NMR (DMSO-d_6)** 1.3 (t, J=7.1 Hz, 3H, $OCH_2\underline{CH_3}$), 2.0 (s, 3H, $CO\underline{CH_3}$), 2.5 (s, 2H, N-

Table 1. Physical Characterization of Synthesized Compounds

S. No.	Code	Molecular formula	Molecular weight	Percentage yield	Appearance	Melting point (℃)
1.	PTQ	$C_{14}H_{10}N_2OS$	254.312	84	Amorphous Solid	248–252
2.	PTQ01	$C_{23}H_{19}N_3O_3S$	417.427	66	Solid crystals	210–213
3.	PTQ02	$C_{25}H_{23}N_3O_3S$	445.480	70	Solid crystals	100–105
4.	PTQ03	$C_{30}H_{25}N_3O_3S$	507.611	64	Amorphous Solid	222–224
5.	PTQ04	$C_{29}H_{20}Cl_2N_3O_3SNa$	584.457	51	Amorphous Solid	160–165
6.	ETQ	$C_{16}H_{14}N_2O_2S$	298.364	62	Amorphous Solid	262–265
7.	ETQ01	$C_{25}H_{23}N_3O_4S$	461.539	69	Solid crystals	180–184
8.	ETQ02	$C_{27}H_{27}N_3O_4S$	489.593	61	Solid crystals	110–115
9.	ETQ03	$C_{32}H_{29}N_3O_4S$	551.664	48	Amorphous Solid	162–168
10.	ETQ04	$C_{31}H_{24}Cl_2N_3O_4SNa$	628.509	51	Amorphous Solid	240–245
11.	NTQ	$C_{18}H_{12}N_2OS$	304.371	54	Amorphous Solid	230–233
12.	NTQ01	$C_{27}H_{21}N_3O_3S$	467.546	61	Solid crystals	140–145
13.	NTQ02	$C_{29}H_{25}N_3O_3S$	495.607	57	Solid crystals	180–185

$\underline{CH_2}$), 3.8 (q, J=7.1 Hz, 2H, O-$\underline{CH_2}$), 6.5–7.2 (m, 13H, Ar-H). **MS** m/z 446 $[M+1]^+$, 445 $[M]^+$; Anal. Calcd for $C_{25}H_{23}N_3O_3S$ (445.48). C, 67.40; H, 5.20; N, 9.43. Found: C, 66.30; H, 5.00; N, 9.13.

PTQ03; IR (KBr disc) cm^{-1} Broad ragged band between 2650–2915 (CO$\underline{OH}$), 1658 (C=O Str), 1440 (CH_3), 1197 (C=S Str), 694 (Ar- region). **^{1}H-NMR (DMSO-d$_6$)** 2.35 (s, 6H, $(CH_3)_2$), 2.7 (s, 2H, N-$\underline{CH_2}$) 6.4–7.9 (m, 16H, Ar-H), 12.5 (s, 1H, COOH). **MS** m/z 507 $[M]^+$; Anal. Calcd for $C_{30}H_{25}N_3O_3S$ (507.6). C, 70.98; H, 4.96; N, 8.28. Found: C, 70.68; H, 5.26; N, 8.30.

PTQ04; IR (KBr disc) cm^{-1} 2886 (-CH_2- Str), 1707 (C=O), 1195 (C=S Str), 763 (C-Cl). **^{1}H-NMR (DMSO-d$_6$)** 1.9 (s, 2H, N-CH_2), 3.49 (s, 2H, CH_2CO). 6.4–7.6 (m, 16H, Ar-H). **MS** m/z 584 $[M]^+$; Anal. Calcd for $C_{29}H_{20}Cl_2N_3NaO_3S$ (584.45). C, 65.06; H, 5.02; N, 9.10. Found: C, 65.10; H, 5.10; N, 9.07.

ETQ01; IR (KBr disc) cm^{-1} 2927 (CH_2 Str), 1324 (Ar-OH), 1170 (C=S Str), 1106 (C-O-C), 684 (Ar- region), **^{1}H-NMR (DMSO-d$_6$)** 1.6 (t, J=7.1 Hz, 3H, CH_3), 2.0 (s, 3H, CO$\underline{CH_3}$), 2.7 (s, 2H, N-$\underline{CH_2}$), 3.8 (q, J=7.1 Hz, 2H, CH_2), 5 (s, 1H, -OH) 6.3–7.8 (m, 8H, Ar-H). **MS** m/z 462 $[M]^+$; Anal. Calcd for $C_{25}H_{23}N_3O_4S$ (461.54). C, 66.24; H, 5.56; N, 8.58. Found: C, 66.15; H, 5.63; N, 8.78.

ETQ02; IR (KBr disc) cm^{-1} 2927 (CH_2 Str), 1658 (C=O Str), 1448 (CH_3), 1174 (C=S Str), **^{1}H-NMR (DMSO-d$_6$)** 1.6 (t, J=7.1 Hz, 6H, (O-CH_2-$\underline{CH_3}$)$_2$), 2.0 (s, 3H, CO$\underline{CH_3}$), 2.7 (s, 2H, N-$\underline{CH_2}$), 3.8 (q, J=7.1 Hz, 4H, (O$\underline{CH_2}$$CH_3$)$_2$), 6.2–7.9 (m, 8H, Ar-H). **MS** m/z 489 $[M]^+$; Anal. Calcd for $C_{27}H_{27}N_3O_4S$ (489.59). C, 69.67; H, 5.30; N, 7.62. Found: C, 69.69; H, 5.35; N, 7.68.

ETQ03; IR (KBr disc) cm^{-1} Broad ragged band between 2400 and 2660 (CO$\underline{OH}$), 1652 (C=O Str), 1446 (CH_3), 1159 (C=S Str), 1095 (-C-O-C-). **^{1}H-NMR (DMSO-d$_6$)** 1.3 (t, J=7.1 Hz, 3H, CH_2 $\underline{CH_3}$), 2.35 (s, 6H, $(CH_3)_2$), 2.7 (s, 2H, N-CH_2), 3.8 (q, J=7.1 Hz, 2H, $\underline{CH_2}$-CH_3), 6.2–7.9 (m, 15H, Ar-H), 11.6 (s, 1H, COOH). **MS** m/z 551 $[M]^+$; Anal. Calcd for $C_{32}H_{29}N_3O_4S$ (551.6). C, 59.24; H, 3.85; N, 6.69. Found: C, 59.34; H, 3.86; N, 6.69.

ETQ04; IR (KBr disc) cm^{-1} 2926 (CH_2), 1662 (C=O), 1197 (C=S Str), 1087 (-C-O-C-), 748 (C-Cl). **^{1}H-NMR (DMSO-d$_6$)** 1.3 (t, J=7.1 Hz, 3H, $CH_2\underline{CH_3}$), 2.7 (s, 2H, N-CH_2), 3.49 (s, 2H, CH_2 CO). 3.8 (q, J=7.1 Hz, 2H, $\underline{CH_2}$-CH_3), 6.4–7.9 (m, 15H, Ar-H). **MS** m/z 628 $[M]^+$; Anal. Calcd for $C_{31}H_{24}Cl_2N_3NaO_4S$ (628.5). C, 70.28; H, 5.08; N, 6.48. Found: C, 70.30; H, 5.11; N, 8.44.

NTQ01; IR (KBr disc) cm^{-1} 2879 (-CH_2- Str), 1658 (C=O), 1440 (CH_3), 1324 (Ar-OH), 1174 (C=S Str). **^{1}H-NMR (DMSO-d$_6$)**, 2.0 (s, 3H, N-CO$\underline{CH_3}$), 2.7 (s, 2H, N-CH_2), 5.0 (s, 1H, OH), 6.4–

7.9 (m, 15H, Ar-H). **MS** *m/z* 467 $[M]^+$; Anal. Calcd for $C_{27}H_{21}N_3O_3S$ (467.54). C, 69.36; H, 4.53; N, 8.99. Found: C, 69.34; H, 4.43; N, 8.94.

NTQ02; IR (KBr disc) cm^{-1} 2927 (-CH_2- Str), 1660 (C=O Str), 1446 (-CH_3), 1172 (C=S Str), 1110 (-C-O-C), 646 (Ar-region). **^{1}H-NMR (DMSO-d_6)**, 1.3 (t, *J*=7.1 Hz, 3H, $CH_2\underline{CH_3}$), 2.0 (s, 3H, N-$CO\underline{CH_3}$), 2.7 (s, 2H, N-CH_2), 3.8 (q, *J*=7.1 Hz, 2H, $\underline{CH_2}$-CH_3), 6.4–7.9 (m, 15H, Ar-H). **MS** *m/z* 495 $[M]^+$; Anal. Calcd for $C_{29}H_{25}N_3O_3S$ (495.60). C, 59.60; H, 3.45; N, 7.19. Found: C, 59.61; H, 3.46; N, 7.23.

Acute Toxicity Studies (LD_{50}) Determination Miller and Tainter *et al*. method[16] was adopted for the determination of LD_{50} value of the synthesized compounds. Albino mice of either sex (20–30 g) were used for this study. The animals were divided into 15 groups of 6 mice each. The synthesized compounds were injected intraperitoneally and the animals were observed for 2 h for death due to acute toxicity. LD_{50} values were found to be 200 mg/kg. The doses of the test compounds were then fixed on the basis of their acute toxicity as 20 mg/kg for evaluation.

Evaluation of Anti-inflammatory Activity Carrageenan Induced Rat Paw Edema method[17] was adopted for the study of anti-inflammatory activity. Albino Rats were divided into twelve groups, of six each. They were starved overnight with water prior to the day of experiment. Group-I served as control and was treated with vehicle (1% CMC). Group-II was treated with Diclofenac sodium (10 mg/kg), Group-III, IV, V, VI, VII, VIII, IX, X, XI and XII was treated with test compounds (20 mg/kg) PTQ01, PTQ02, PTQ03, PTQ04, ETQ01, ETQ02, ETQ03, ETQ04, NTQ01 and NTQ02 respectively. All the test compounds were suspended in 1% CMC and were administered orally 30 min before the carrageenan injection.

Acute inflammation was induced in each group by injecting 0.1 ml of 1% w/v carrageenan into the sub plantar region of right hind jaw. The initial reading was taken at 0 h, *i.e.*, immediately after injecting carrageenan and the procedure was repeated at 0.5, 1 and 2 h after carrageenan injection, with the help of Plethysmometer. Percentage inhibition of paw edema was calculated using the formula (Vt/Vc-1)×100 and tabulated (Table 2).

Analgesic Activity Eddy's hot plate method[18] was adopted for evaluation of analgesic activity.

Table 2. Anti-inflammatory Activity of the Titled Compounds

S. No.	Treatment	Dose mg/kg	Percentage stabilization (mean±S.E.M.)
1.	1%CMC	—	00.00±00.00
2.	Diclofenac sodium	10	87.74±0.676*
3.	PTQ01	20	81.44±0.1872*
4.	PTQ02	20	74.19±0.1872*
5.	PTQ03	20	64.64±0.3774*
6.	PTQ04	20	67.27±0.3098*
7.	ETQ01	20	77.74±0.3703*
8.	ETQ02	20	73.42±0.1842*
9.	ETQ03	20	44.13±0.3170
10.	ETQ04	20	77.41±0.2481*
11.	NTQ01	20	78.91±0.1768*
12.	NTQ02	20	79.20±0.1778*

* $p<0.001$ significant compared with control.

Swiss strain albino mice of either sex weighing 25–30 g were used for this study. The test compounds were administered intraperitoneally in a dose of 20 mg/kg in 10% v/v tween 80 suspensions. The animals were divided into 12 groups of 6 mice each. First group serves as control, second group was treated with pentazocin (5 mg/kg) and the remaining ten groups were administered intraperitoneally with the newly synthesized series of thioxoquinazolinone derivatives (20 mg/kg) respectively. The reaction time was noted for all groups on Eddy's hot plate before and after treatment of standard drug pentazocin and synthesized compounds. All the data (mean±S.E.M.) were analyzed statistically by student "*t*" test and the values were recorded in Table 3.

Ulcerogenic Potential Since gastric ulceration is considered to be main side effect of NSAIDs the ulcerogenic potential of the compounds PTQ01 and ETQ01 was investigated by Scibert *et al*. method.[19] Albino rats of either sex (160–180 g) were deprived of food for 12 h before administration of drug. First group (control) was treated with water, second group was treated with standard drug diclofenac sodium suspension (1% sodium CMC) at a dose level of 5 mg /kg *p.o.*, third and fourth group was treated with PTQ 01 and ETQ 01 suspension (1% sodium CMC) at a dose level of 20 mg/kg *p.o.* After 6 h animals

Table 3. Analgesic Activity of the Titled Compounds

S. No.	Treatment	Basal reaction time (sec) before treatment (mean±S.E.M.)	Basal reaction time (sec) after treatment (mean±S.E.M.)			
			15 min	30 min	60 min	120 min
1.	Control	3.66±0.6667	3.62±0.7643	3.58±0.7743**	3.28±0.2106	3.48±0.2232
2.	Pentazocin	3.83±0.6978	12.42±0.6456	13.32±0.4632**	14.68±0.4213**	14.84±0.5578**
3.	PTQ01	4.62±0.7032	11.32±0.557**	12.22±0.5746**	9.28±0.1564**	7.92±0.9768
4.	PTQ02	3.78±0.4771	10.48±0.9854**	11.64±0.6754**	8.56±0.4532*	6.68±0.4575
5.	PTQ03	3.82±0.7514	9.36±0.3014**	10.72±0.2346**	8.44±0.6453*	7.54±0.1456
6.	PTQ04	3.83±0.3438	10.38±0.5592**	11.25±0.0564**	10.82±0.5874**	6.92±0.4355
7.	ETQ01	4.34±0.6678	12.24±0.4944**	13.56±0.6672**	11.78±0.2341**	9.52±0.645**
8.	ETQ02	4.35±0.6656	10.72±0.4996**	10.46±0.4543**	9.26±7241**	6.36±0.8032
9.	ETQ03	3.78±0.4773	9.32±0.3073**	10.58±0.3763**	8.18±0.3425*	4.57±0.3180
10.	NTQ-1	3.68±0.6015	6.68±0.4772	7.64±0.5643	5.36±0.7864	4.52±0.7724
11.	NTQ-2	3.72±0.7491	9.72±0.5426**	10.56±0.7432**	8.28±0.9854*	7.76±0.2356

** $p<0.001$ indicates the highly significant difference compared with control. * $p<0.05$ indicates the significant difference compared with control.

were sacrificed and examined for haemmorhages and ulcers. Ulcer index was calculated.

RESULTS AND DISCUSSION

A series of 3-substituted-2-thioxoquinazolin-4(3*H*)-one derivatives have been synthesized by Mannich reaction. The compounds synthesized were in correlation with the expected structures. The titled compounds were evaluated for *in vivo* anti-inflammatory activity by carrageenan induced paw edema method at a dose of 20 mg/kg. All the compounds except ETQ03 exhibited anti-inflammatory activity. *N*-(4-hydroxyphenyl)-*N*-(4-oxo-3-phenyl-2-thioxo-3,4-dihydroquinazolin-1(2*H*)methyl)acetamide (PTQ01) showed excellent anti-inflammatory activity. *N*-(4-ethoxyphenyl)-*N*-(3-(naphthalen-2yl)-4-oxo-2-thioxo-3,4-dihydroquinazolin-1(2*H*)-yl)methyl) acetamide (NTQ02), *N*-(4-hydroxyphenyl)-*N*-((3-naphthalen-2-yl) 4-oxo-2-thioxo-3,4-dihydorquinazolin-1(2*H*)-ylmethyl)acetamide (NTQ01), *N*-((3-(4-ethoxyphenyl)-4-oxo-2-thioxo-3,4-dihydoquinazolin-1(2*H*)-yl)methyl)-*N*-(4-hydroxyphenyl)acetamide (ETQ01), *N*-((3-(4-ethoxyphenyl)-4-oxo-2thioxo-3,4-dihydroquinazolin-1(2*H*)-ylmethyl)-*N*-(4-hydroxyphenyl)acteamide (ETQ04), *N*-(4-ethoxyphenyl)-*N*-((4-oxo-3-phenyl-2-thioxo-3,4-dihydoquinazolin-1(2*H*)-yl)methyl))acetamide (PTQ02) and *N*-(4-ethoxyphenyl)-*N*-(3-(4-ethoxyphenyl)-4-oxo-2-thioxo-3,4-dihydoquinazolin-1(2*H*)-yl)methyl) acetamide (ETQ02) at a dose of 20 mg/kg exhibited significant anti-inflammatory activity compared to that of standard drug diclofenac sodium. The compound 2-((2,3-dimethylphenyl)(3-(4-ethoxyphenyl)-4-oxo-2-thioxo-3,4-dihydroquinazolin-1-2*H*)-1ylmethylamino)benzoic acid PTQ03 and sodium 2-(2-((2,6-dichlrophenyl)(3-(4-oxo-2-thioxo-3,4-dihydroquinazolin-1(2*H*)-yl)methyl)amino)phenyl acetate (PTQ04) showed moderate anti-inflammatory activity. The compounds PTQ01, PTQ02, PTQ04, ETQ01 and ETQ02 showed significant analgesic activity compared with that of standard drug pentazocin. The synthesized compound PTQ01 and ETQ01 have the ulcer index 0.172±0.167 and 0.184±0.975 respectively, where as the standard drug showed 0.216±0.639. Therefore the synthesized compounds PTQ01 and ETQ01 where found less ulcerogenic than diclofenac, which reveals that it possess less GIT side effects.

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