

**ANTI-INFLAMMATORY & ANTIOXIDANT OF SOME NEW ACID CHLORIDE  
DERIVATIVES OF 2-AMINO-N-(3-CHLOROPHENYL)-4, 5, 6, 7-  
TETRAHYDROBENZO[b] THIOPHENE-3-CARBOXAMIDE**

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**Summary**

Substituted thiophenes were prepared by application of Gewald reaction. The synthesized derivatives were screened for invitro Anti-inflammatory, Anticonvulsant and Antioxidant activity comparable to that of Ibuprofen, and Ascorbic acid respectively.

**Key words:** Substituted thiophenes, Anti-inflammatory activity & Antioxidant activity.

**Introduction**

Thiophene derivatives have attracted a great deal of interest owing to their medicinal activities. A wide spectrum has been reported to these compounds, such as Antimicrobial & antifungal (1-3), CNS depressant activity (4), sedative (5), antitumour (6), analgesic (7), local anesthetic (8) activities. In our previous work we reported the synthesis and Antimicrobial activity of title compounds (9). As part of this work we report the anti-inflammatory & antioxidant activity of the title compounds.

**Materials And Methods**

**Anti-inflammatory Screening**

Screening of anti-inflammatory activity was carried out by Inhibition of bovine serum albumin denaturation method<sup>10</sup> using Ibuprofen as standard. The test compounds were dissolved in minimum amount of water and diluted with phosphate buffer (0.2M, P<sup>H</sup> 7.4). Test solutions of drug was mixed with albumin solution in phosphate buffer and incubated at  $27^{\circ} \pm 1^{\circ}$  C for 15 minutes. Denaturation was induced by keeping the reaction mixture at  $60^{\circ} \pm 1^{\circ}$  C in a water bath for 10 minutes. After cooling the turbidity of the resulting solution was measured at 660 nm. Each experiment was done in triplicate and the average reading was taken. The results of biological screening are summarized in Table-1.

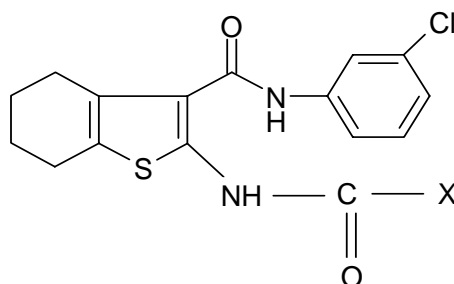
**Antioxidant Screening**

Antioxidant activity was carried out by reduction method (11) where increase in absorbance of the reaction mixture indicates the reducing power of the samples.

Test compounds were mixed with phosphate buffer and potassium ferricyanide [ $K_3Fe(CN)_6$ ] (1%) and the mixture was incubated at  $50^{\circ}C$  for 30 minutes. Then, trichloro acetic acid was added to mixture, and the same was then centrifuged at 3000 rpm for 10 minutes. Finally, upper layer was separated mixed with distilled water and ferric chloride (0.1%) added and the absorbance was recorded at 700 nm. Ascorbic acid was taken as standard for antioxidant activity. The results of biological screening are summarized in Table-1

### Anti-inflammatory and Antioxidant activity of Title compounds

Table-1



Compound	X	Anti-inflammatory Activity* (% Bovine serum inhibition)	Antioxidant Activity (%)*
2a	2-bromophenyl	10.22	10.86
2b	4-Chlorophenyl	27.65	22.50
2c	2-hydroxyphenyl	50.24	53.89
2d	2-amino-5-bromophenyl	22.12	15.86
2e	2-aminophenyl	31.20	30.00
2f	2-chlorophenyl	29.14	33.64
2g	Acetyl	40.12	12.89
2h	2-hydroxy-3,5-dinitrophenyl	45.21	41.22
2i	3-phenylacryl amido	28.92	32.33
Ibuprofen	-----	65.86	-----
Ascorbic acid	-----	-----	98

\*Results average of three readings

### Results and Conclusions

The results of Anti-inflammatory and Antioxidant revealed compounds **2c**, **2h** have shown most potent anti-inflammatory activity & antioxidant activity. The compounds **2a**, **2b**, **2e**, **2f** **2i** have shown moderate anti-inflammatory & antioxidant activity. The Hydroxy substitution at ortho position made the compound to exhibit most potent anti-inflammatory and antioxidant activity. It indicates the presence of electron releasing groups made the compounds to exhibit anti-inflammatory activity & antioxidant activity when compared to standard drugs.

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