

## Synthesis, Anti-inflammatory Activity of 3-Amino 6-Methoxyl 2-methyl quinazolin-4(3H)-One and 3-Amino 6-Methoxyl -2-methyl of 4H-benzo[d][1,3]-Oxazine-4-one

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### Abstract

**Background:** Quinazolinone derivatives represent one of the most active classes of compounds possessing a wide spectrum of biological activity. They are widely used in pharmaceuticals and agrochemicals. Looking to the medicinal importance of 4(3H)-quinazolinone, we report here the synthesis of a new class of heterocyclic molecules in which all of these moieties are present and try to develop potential anti-inflammatory molecules.

**Objective:** The objective of the present study was to synthesize these quinazolinone derivatives 3-Amino 6-Methoxyl 2-Methyl-4H-benzo[d]-[1,3]-Oxazin-4-one and 3-Amino-6-methoxyl-2-Methyl-3H-Quinazolin-4-One and screened them for their anti-inflammatory activity.

**Method:** The condensation of 2-amino-methyl 5-dimethoxybenzoate with acetic anhydride yielded the cyclic compound 2-methyl 5-substituted-1, 3-benzo-oxazine-4-one which further produce a novel 2,3-disubstituted quinazolin-4 ones via the reaction with hydrazine hydrate. The compounds synthesized were unequivocally confirmed by means of Infrared, Nuclear Magnetic Resonance ( $^1\text{H}$  and  $^{13}\text{C}$ ), Gas Chromatography Mass Spectrophotometer and Elemental analysis. The synthesized compounds were screened and evaluated pharmacologically for their in-vivo anti-inflammatory activity by the paw volume of each rat was measured before 1 and after 3 h of Carrageenan treatment with the help of a Plethysmometer.

**Discussion:** compound 1 displayed a singlet signal at:  $\delta$  3.78 attributed to methoxy group and singlet at  $\delta$  3.68 which was due to methyl group. Other singlets appeared at  $\delta$  7.16 and 6.40 attributed to aromatic protons.

Also,  $^1\text{H}$  NMR spectrum of compound 2 showed a characteristic signal at  $\delta$  2.56 (singlet) corresponding to methyl group and duplet at:  $\delta$  3.90 for methoxy group. Two singlets appeared at  $\delta$  7.41 and 7.10 attributed to aromatic protons. Another signal appeared at 5.80 which was attributed to the protons of the amino group. For the IR spectra. Compound 1 was characterized by absence of  $\nu$   $\text{NH}_2$  and presence of  $\nu$  C-O stretch in  $1101\text{cm}^{-1}$  region of the compound. Compound 2 and 4 were characterized by absence of  $\nu$  C-O and presence of  $\nu$   $\text{NH}_2$  in  $3301\text{cm}^{-1}$  and  $3300$  region of the compounds. compound 1, revealed signals at  $\delta$  16.95, 51.93 and 56.13 attributed to methyl and the two methoxy groups respectively, while the aromatic carbon atoms appeared between  $\delta$  values 100.05-168.28 with the carbonyl carbon atom appearing as the highest  $\delta$  value of 168.28. Similarly, compound 2 showed signals at  $\delta$  22.58, 56.63 and 56.80 attributed to methyl and the two methoxy groups respectively, while the aromatic carbon atoms appeared between  $\delta$  values 105.64-160.28, with the carbonyl carbon atom appearing as the highest  $\delta$  value of 160.28. The Compounds were screened for their Anti-inflammatory activity. These compounds synthesized have a higher anti-inflammatory activity than acetylsalicylic acid, which is a standard analgesic drug.

**Conclusion:** Compound 2 has a higher Anti-inflammatory activity than Compound 1. These compounds synthesized have a higher anti-inflammatory activity than Indomethacin, standard anti-inflammatory drug.

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