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### Synthesis, Characterization and Biological Evaluation of some 2, 3-dihydroquinazolinone coupled 5, 5-disubstituted imidazolidine-2,4-diones

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**Abstract:** The aim of the present work is to synthesize and find out the biological importance of the series of the designed 2, 3-dihydroquinazolinone coupled 5, 5-disubstituted imidazolidine-2,4-diones compounds. 4-(4-oxoquinazolin-3(4H)-yl)benzene-1-sulfonyl chloride is obtained by the reaction between 4-aminobenzene-1-sulfonyl chloride and 4H-benzo[d] [1,3]oxazin-4-one. This compound was then condensed with 5, 5-disubstituted imidazolidine-2, 4-diones compounds. And four novel compounds were prepared in moderate yields. The structures of all four derivatives have been characterized on the basis of physical properties of the molecule and satisfactory spectral (IR, <sup>1</sup>H NMR) data. These compounds were evaluated for their antimicrobial activity against Gram (+) and Gram (-) bacteria as well fungal organism. is evaluated. The compounds showed lower to moderate level of drug like properties.

**Keywords :** Imidazolidinone, oxoquinazolin, hydantoin, antimicrobial activity.

#### Introduction:

Hydantoins and their derivatives are well known for their medicinal and many important non-medicinal applications. <sup>1-5</sup> In the vast literature study it is found that these derivatives are frequently applied as anticonvulsant<sup>6</sup>, Antibacterial<sup>7</sup>, Antidiabetic<sup>8</sup>, Antiviral<sup>9</sup>, Anti-HIV<sup>10</sup> and many more. As well the quinazolinone derivatives are also well exploited for their medicinal and pharmaceutical applications viz. CNS depressant and anticonvulsant<sup>11</sup> antibacterial and antifungal<sup>12</sup> antimicrobial<sup>13</sup> and so many allied applications. Both these moieties are much more active against different microbes and pathogens in order to avail maximum effectiveness we designed some coupled derivatives of quinazolinone and hydantoin compounds. Literature study indicated that there is no significant work is available towards this concept.

In the present work four molecules were designed with their structures (Scheme-1) and synthesized accordingly. These structures were characterized by spectroscopic analysis. For getting antimicrobial characteristics they were also evaluated for their antimicrobial activities.