

## Synthesis and evaluation of antibacterial and antifungal activity of some novel derivatives of 3- amino 2-methyl quinazoline- 4(3H)-one

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**Background and Aims:** Quinazoline derivatives are a class of chemical compounds that have been proved to have antimicrobial activity. Both Schiff's base and quinazoline moieties are equally essential for the antimicrobial activity of these compounds. There are some reports of other biological activities of quinazoline derivatives such as antitumor, anti-inflammatory, anti-HIV, antihypertensive, anthelmintic and antituberculosis activity. Here, we report the synthesis and evaluation of antimicrobial activity of some Schiff base derivatives of 2-methyl-3-amino quinazoline 4(3H)-one which have two antimicrobial pharmacophores quinazoline ring and Schiff base imine group in their structure.

Synthesis procedure of these compounds involved three steps:

- Reaction of anthranilic acid with acetic anhydride in reflux condition to yield 2-methyl-benzoxazinone derivative.
- Addition of hydrazine hydrate to this intermediate in boiling absolute ethanol.
- Condensation of the obtained 2-methyl-3-amino quinazoline 4(3H)-one with different aldehydes to prepare the final compounds.

MIC values were determined using agar proportion method. Antimicrobial activity against six bacteria, both gram-positive and gram-negative bacteria and two fungi by using a turbidometric assay method were tested. All of the final products were prepared in high yields. The formation of the final compounds was confirmed by structural elucidation of their structures using IR and <sup>1</sup>H-NMR spectroscopy methods. Antimicrobial activity was determined as MICs. The most susceptible microorganisms was *Pseudomonas aeruginosa* which its growth was inhibited by 64 µg/mL of compound III, IV and V. The most resistant bacterium was *Bacillus subtilis*. In the study, one intermediate and five Schiff base derivatives of 2-methyl-3- amino-quinazoline-4(3H)-one were synthesized. The antimicrobial activity has been evaluated by micro dilution method. The antifungal activity of the compounds was quite lower than their antibacterial activity. Compounds III, IV, V were the most potent compounds against *Pseudomonas aeruginosa* with MIC=64 µg/mL. The rest of compounds were moderated to weak antibacterial agents.

**Keywords:** 2-methyl-3-amino quinazoline -4(3H)-one; Antibacterial activity; Antifungal; Schiff base