Highly Efficient Synthesis of New 3,5 Substituted (Isoxazolines) and 2,3,5-Trisubstituted (Pyrazolines) Mediated by Choramin-T and their Evaluation of Antioxidant and Antibacterial Activities

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Abstract — Two short series of five membered heterocyclic 3,5-disubstituted–isoxazolines derivatives **(Va-f)** and 2,3,5-trisubstituted-pyrazolines derivatives **(VIIa-f)** were synthesized via 1,3-dipolar cycloaddition reaction of 2-(allyloxy)-4,6-dimethoxypyrimidine **(III)** with aromatic aldoximes **(IV)** which undergo oxidative–dehydrogenation with chloramine–T to give 3,5-disubstituted–isoxazolines derivatives **(Va-f)** and oxidative cyclization of diphenyl hydrazones **(VI)** using chloramine-T to give 2,3,5-trisubstituted-pyrazoline derivatives **(VIIa-f)** in good yield. The newly synthesized compounds were screened for anti-oxidant and anti-microbial activities. 2,3,5-trisubstituted-pyrazolines derivatives **(VIIb-e)** revealed higher antioxidant activity at 10µg/ml while 3,5-disubstituted–isoxazolines derivatives **(Va-c)** and 2,3,5-trisubstituted-pyrazolines derivatives **(VIIa-c)** showed better anti-microbial activity at 100µg/ml compared with standard vitamin C and ciprofloxacin, respectively. Structures of newly synthesized compounds were established on the basis of their elemental analysis and spectral IR, ^{1}H-NMR and ^{13}C-NMR.

Keywords: isoxazolines, pyrazolines, chloramine–T, antioxidant, antibacterial

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