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ANTIOXIDANT ACTIVITY PROFILE OF SOME NEW BENZIMIDAZOLE CARBAMATES

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ABSTRACT
The present study involves the antioxidant study of 3-((5-((6-benzoyl)-1H- benzo] imidazol -2-yl) amino)-1, 3, 4-oxadiazol-2-yl) imino) substituted indolin-2-ones by DPPH assay method. Among the compounds, compound without any substitution possessed good activity when compared with Ascorbic acid.

KEY WORDS
benzimidazole, isatin, antioxidant.

INTRODUCTION

Literature supports that benzimidazole moiety possess huge number of activities like antioxidant, anti-inflammatory, cytotoxic, analgesic.

In the present study we are aimed evaluate these benzimidazole containing copounds for their antioxidant activity.

Synthesis of the title compounds were followed by the literature.[1]

EVALUATION OF ANTIOXIDANT ACTIVITY:

α,α-Diphenyl picrylhydrazyl (DPPH 1ml of 0.135mM in methanol), a stable free radical was used for the evaluation of the antioxidant activity of the test compounds.[2] To 1ml of the test compound (at different concentrations), 1ml of DPPH solution were added, mixed thoroughly and absorbance (optical density) read at 517nm against blank. The percentage reduction of free radical Concentration (OD) with different concentrations of test compounds was calculated and compared with standard, ascorbic acid. Results were expressed as IC_{50} values (concentration of test required to scavenge 50 % free radicals.)

RESULTS AND DISCUSSION

The *in vitro* Anti oxidant data of 3-((5-((6-benzoyl)-1H-benzo] imidazol -2-yl) amino)-1, 3, 4-oxadiazol-2-yl)imino)indolin-2-one(VIIIa-m) is depicted in Table 1 and Figure 1.

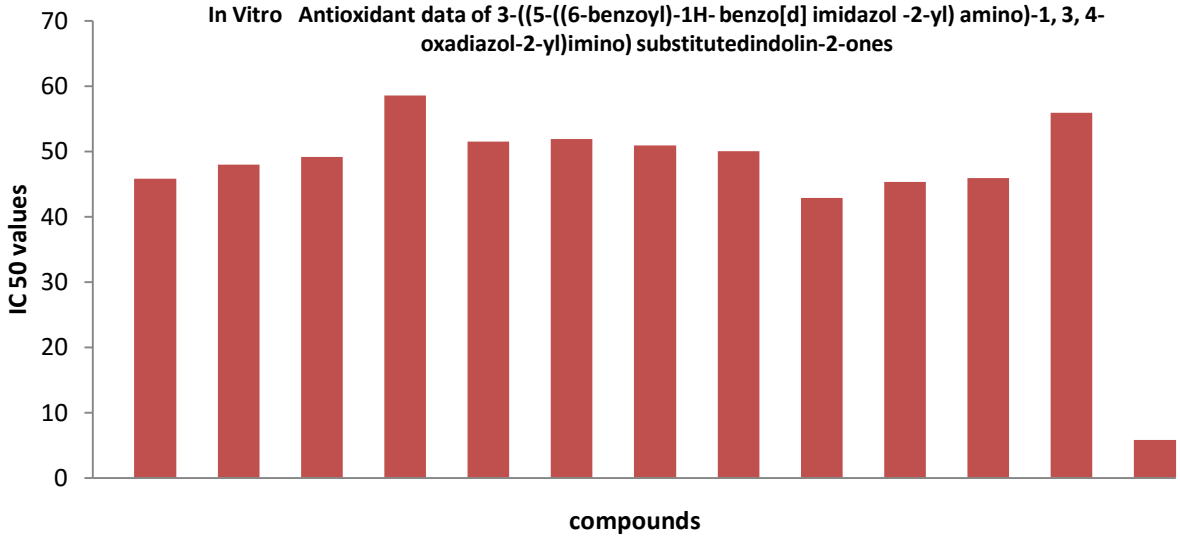
IC_{50} values of the synthesized test compounds are compared with the IC_{50} values of standard ascorbic acid 5.83µµg/ml. most potent among the compounds was Compound **VIII a(R=H**) with the IC_{50} values of 40.19 µg/ml. compounds **VIIIj (R=5-NO_2) VIII b (R=CH_3)** have been found to be next in order of antioxidant activity with IC_{50} values 42.92 µg/ml; 45.29 µg/ml 45.81 µg/ml respectively. The IC_{50} values of rest of the compounds are in the range of 40.19µg/ml to 55.89µg/ml respectively.

Table 1: *In Vitro* Antioxidant data of 3-((5-((6-benzoyl)-1H- benzo[d] imidazol -2-yl) amino)-1, 3, 4-oxadiazol-2-yl)imino) substitutedindolin-2-ones VIII (a-m)

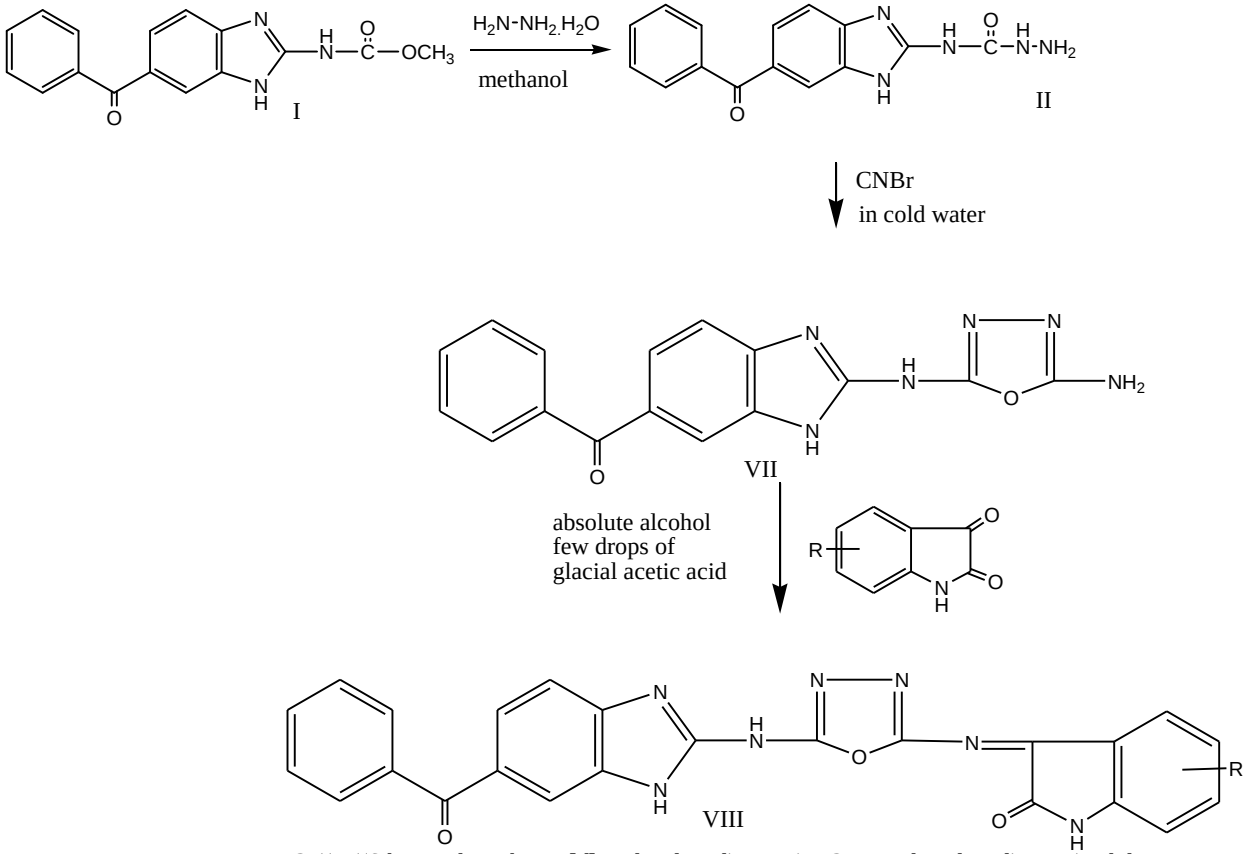
S.No.	Compound	R	IC_{50}(µg/ml)
1	VIIIa	H	40.19
2	VIIIb	5-CH_3	45.81
3	VIII c	7-CH_3	48.02
4	VIII d	5-F	49.19
5	VIII e	5-$COOCH_3$	58.52
6	VIII f	5-Cl	51.52
7	VIII g	7-Cl	51.92
8	VIII h	5-Br	50.92
9	VIII i	6-Br	50.02
10	VIII j	5-NO_2	42.92
11	VIII k	7-NO_2	45.29
12	VIII l	5-COOH	45.89
13	VIII m	7-$COOCH_3$	55.89
14	standard	Ascorbic acid	5.83

*** Values are expressed as means (n=4)**

Figure 1: *In Vitro* Antioxidant data of 3-((5-((6-benzoyl)-1H- benzo[d] imidazol -2-yl) amino)-1, 3, 4-oxadiazol-2-yl)imino) substitutedindolin-2-ones VIII (a-m)



Scheme 3: Synthesis of 3-((5-((6-benzoyl)-1H- benzo [d] imidazol -2-yl) amino)-1, 3, 4-oxadiazol-2-yl) imino) substituted indolin-2-one (VIII a-m):



3-((5-((6-benzoyl-1*H*-benzo[*d*]imidazol-2-yl)amino)-1,3,4-oxadiazol-2-yl)imino)indolin-2-one

R=H,5-CH_3,7-CH_3,5-F,5-Cl,5-Br,5-NO_2,7-NO_2,7-Cl5-COOH,5-$COOCH_3$,7-$COOCH_3$,

CONCLUSION

The study of antioxidant evaluation of the title compounds was positively undergone. Among the compounds, compound without any substitution possessed good activity when compared with Ascorbic acid.

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CONFLICT OF INTEREST:

The authors express no conflict of interest.

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