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Synthesis and Fungicidal Activity of Novel Imidazolone Derivatives

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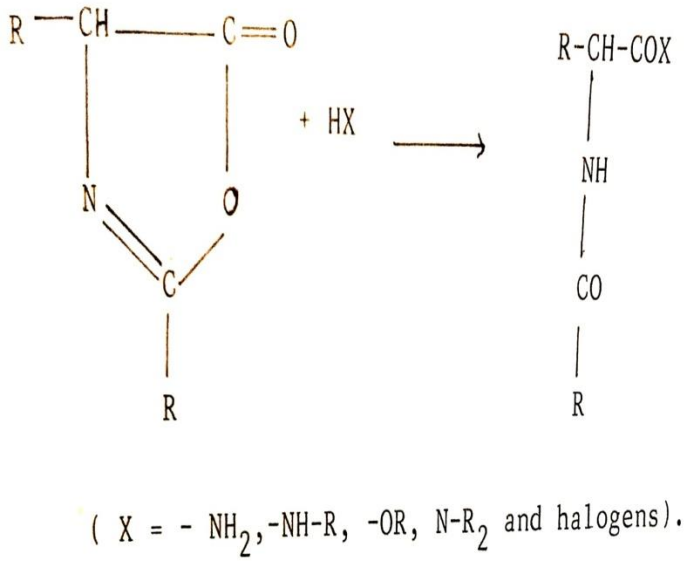
Abstract:-A Series of Novel imidazolone derivatives were Designed and synthesized. Imidazolone Derived from2-(p-tolyl)-4-(4-NN-bis-2'-cyano ethyl amino-2-ethoxy benzylidine)-5-oxazolone.Azlactones on Refluxing with Sulfa drugs in Presence of Pyridine and one drop of Phosphorous oxy Trichloride afforded imidazolone derivatives in high Yield. The structure of Imidazolone derivatives have been Confirmedby elemental analysis and I.R. spectrum. All the synthesized Compounds have been screened for their antifungal activity against Rhizopusnodosusnany Slowski at concentration 1-3% (W/V) by paper discplate method.[1] All the synthesised Compounds have been active against fungi.

I. INTRODUCTION

Much Importance has been paid to the investigation of chemistry of a lactones as they (azlactonas) serve as intermediates in the synthesis of α- Ketoacid ,α-amino acids, acryl amino proteomic acid , quinolines , isoquinolines and variety of other types of compounds. Chemistry of oxazolones made considerable advancement during the second world war , for it was linked with chemistry of penicillin for which a structure having anoxazolone moiety was proposed.

Azlactones behave in many respects like Acid hydrazides and react with a wide variety of compounds with contain active hydrozen atom such as water ,alcohol, amines ,ammonia and hydrogen halides.



(X = - NH_2,-NH-R, -OR, N-R_2 and halogens).

Imidazolone derivatives have been obtained from azlactones by many investigator. [3,4]Certain imidazolone derivatives have been converted in to dipeptides by Granacher and Mobler[5] .In the present investigation new imidazolone derivatives have been prepared.

II. SYNTHESIS OF NEW IMIDAZOLONES

In the Present work new imidazolones have been prepared from a lactones. New a lactones (III) have been prepared by the interaction of 4-NN-bis-2'-cyanoethyl amino -2-ethoxy benzaldehyde (I) with p-tolyl and m-chloro benzoyl glycine (II) .

Azlactones on refluxing with sulpha drugs in presence of pyridine and one drop of phosphorous oxytrichlorideafordedimidazolone (IV) derivatives in high yield. The synthesis was accomplished along the following route.

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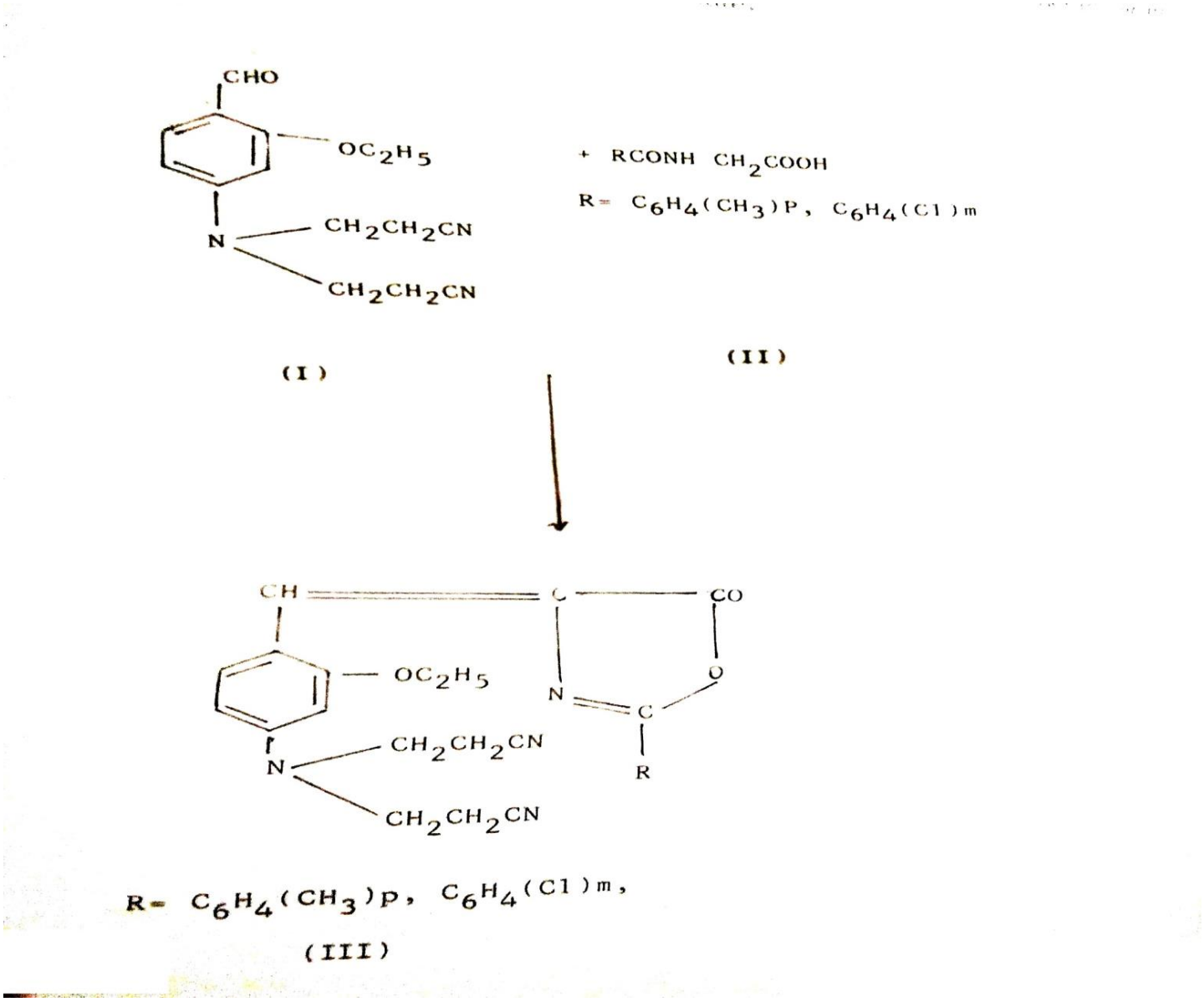
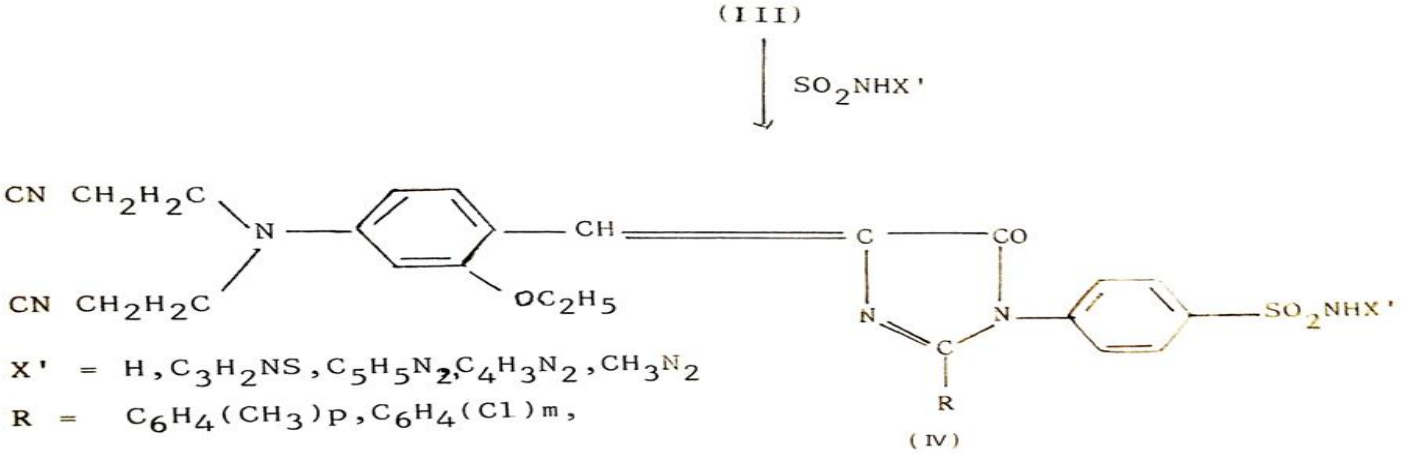
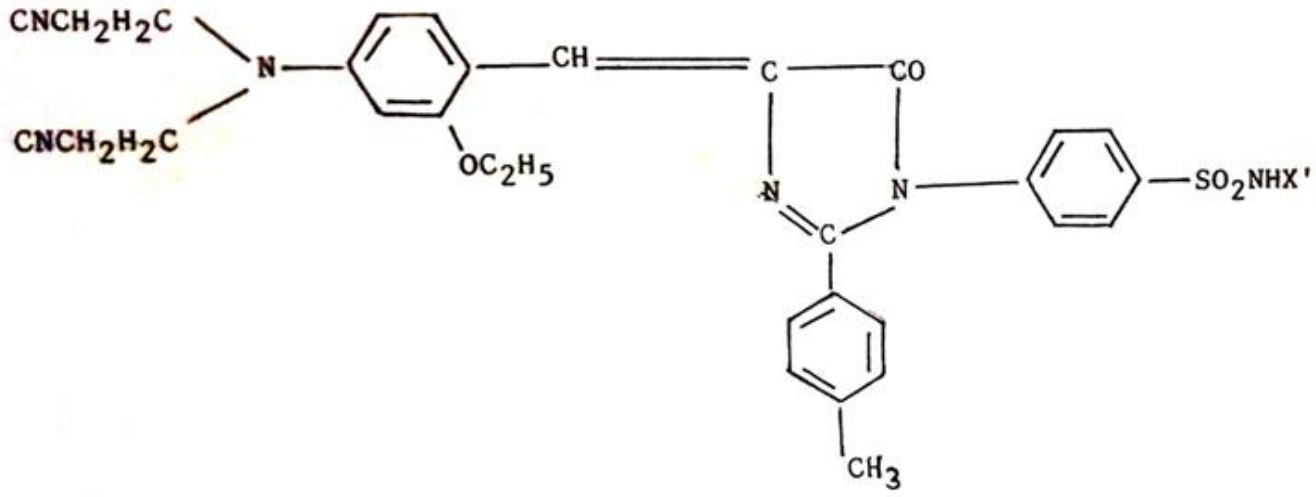




The other imidazolone derivatives have been synthesized by refluxing azlactones and sulpha drugs in presence of pyridine and $POCl_3$ as Condensing agent. The preparation of glycine was done according to the method suggested by Vogel[6].Synthesis of cyan ethylated aldehyde was modelled on the reported procedure[7] . Data on the Synthesis of new imidazolone derivatives (IV) have been presented in table (I)



S.NO.	X'	Colour	M.P.°C	Yield %	Molecular Formula	Nitrogen %	
						Found	Requires
1	H	Dark Red	213	55.84	$C_{31}H_{30}O_4N_6S$	14.37	14.43
2	C_3H_2NS	Dark Red	236	61.65	$C_{34}H_{31}O_4N_7S_2$	14.69	14.73
3	$C_5H_5N_2$	Red	220	54.89	$C_{36}H_{36}O_4N_8S$	16.55	16.61
4	$C_4H_3N_2$	REDISH BLACK	185	49.24	$C_{35}H_{32}O_4N_8S$	16.42	16.36
5	CH_3N_2	RED	228	51.80	$C_{32}H_{32}O_4N_8S$	18.38	18.42

Table 1: Imidazolones Derived from 2-(p-Tolyl)-4 -(4- NN-BIS-2'- Cyanoethyl Amino -2-Ethoxy Benzylidine)-5 Oxazolone.

The Structure of imidazolone derivatives have been confirmed by elemental analysis and I.R. Spectrum.

III. FUNGICIDAL ACTIVITY

All the synthesised Compounds (Tabel. I) have been screened for their antifungal activity against Rhizopusnodosusnanyslowski (which Causes fruit rot disease of brinzal) at concentration 1-3 % (w/v) by paper discplate method. The synthesised compound (Table I) have been active against fungi.

IV. CONCLUSION

The structure of the inidazolones derived from 2-(p-Tolyl)-4-(4-NN-bis-2'-cyanoethyl amino -2-ethoxy benzylidine)-5-oxazolone have been confirmed by elemental analysis and I.R. spectrum. The synthesised compound (Table I) have been active against fungi.

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