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Short Communication

SYNTHESIS AND BIOLOGICAL ACTIVITY OF SOME N-BENZYLIDENE DERIVATIVES OF 2-ARYL-5-HYDROXY-7-METHYL-1, 2, 4-TRIAZOLO-[1, 5-A]-PYRIMIDINES

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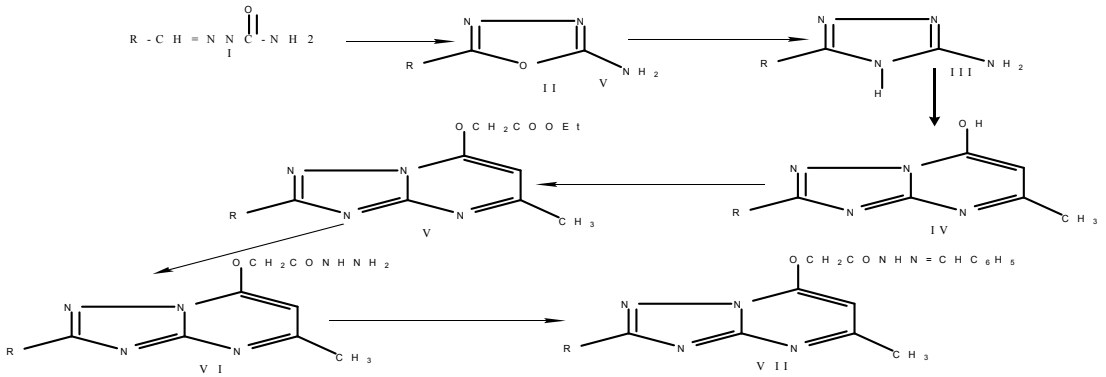
ABSTRACT
In view of the fact that a large number of oxadiazole, thiadiazoles and heterocycles[1][2][3], with nitrogen atom as triazolo-pyrimidines and its derivatives exhibits number of biological activities as herbicidal [4], antimicrobial activity [5],antifungal[6],antibacterial[7],antiinflamatory[8],antialergic[9] anticancer[10] analgesic[11]cardiovascular[12] HIV-1 inhibitor[13].[antitumor.[14] anti-malarial.[15] as antiviral.[16].It was considered worthwhile to synthesize N-Benzylidene derivatives of 2-aryl-5-hydroxy-7-methyl-1,2,4-triazolo-[1,5-a]-pyrimidines(vii).

KEYWORDS: IR, NMR, Semicarbazide hydrochloride, Ethyl acetoacetate,Hydrazine hydrate.

Experimental
All melting points were taken in open capillary tube and are incorrected.The I.R Spectra(KBr) were recorded on pye-unicam SP-2000 Spectrometer. IR spectra were in KBr cm-! and exhibited the following peaks: 3300(N—H);2900-2800(aromatic C—H stretching); 1685-1670 (Sec. Amide >c=o); 1650-1560(-C=N-) 1580-1510(C—N); 1550-1500(-C=N); 1540 (NH bends); 1220-1020 (C-N-C); 700-650 (C---H bends); and PMR spectra were recorded on a perkin-elmer R-32 spectometre using TMS as reference; and which showed the following signal: δ: 2.59 (3H,s,CH3); 3.55-3.99 (3H,s,-OCH3); 5.1(2H,s,--OCH2); 6.7-7 (m,Ar-H and 6-pyrimidino protones) Elemental analysis was performed on a Heracus CHN analyser. N-Benzylidene derivatives of 2-aryl-5-hydroxy-7-methyl-1,2,4-triazolo-[1,5-a]-pyramidines(vii) were prepared by a mixture of hydrazide compound(Via) 1.4g and 0.5ml of benzaldehyde in 50 ml of ethanol with few drops of glacial acetic acid refluxed for 8-10 hrs.The mixture was concentrated, solid obtained after cooling, filtered and crystallized from alcohol to get the required product.

The general scheme involves the conversion of aldehydes to corresponding semicarbazones (I) by refluxing with semicoarbazide HC1 and sodium acetate .The semicarbazones were cyclised to the corresponding oxadiazole derivatives (II) using bromine and glacial acetic acid, various oxiadazole derivatives were convereted into triazoles (III) by refluxing with formamide in ethylene glycol at 180 C^0 for 15-18hrs.These triazoles wrer converted into hydroxy triazolopyrimidine derivatives (IV) by refluxing with ethylacetoacetate in glacial acid. These hydoxy derevatives (IV) were refluxed with ethylchloroacetate to give ethyl (2-aryl-7-methyl-1,2,4-triazolo-[1,5-a]-pyrimidyloxy-5-acetate(V) which on refluxing with hydrazine hydrate 90% to give 2-aryl-7-meyhyl-1,2,4-triazolo-[1,5-a]-pyrimid-5-yloxy acetic acid hydrazide (VI).These are condensed with benzaldehyde with few drops of the glacial acetic acid to give the required product(VII).These N-Benzylidene derivatives of 2-aryl-5-hydroxy-7-methyl-1,2,4-triazolo-[1,5-a]-pyrimidines were crystallized from ethanol as solid having M. Pt. range 250-295C^0



a:R = Phenyl
b:R=3,4,Dimethoxy Phenyl
b:R=3-Methoxy phenyl
d:R=4-Hydroxy-3-methoxy phenyl, e:R=Furfury
IR spectra were recorded in KBr cm-! and exhibited the following peaks: 3300(N—H);2900-2800(aromatic C—H stretching); 1685-1670 (Sec. Amide >c=o); 1650-1560(-C=N-) 1580-1510(C—N); 1550-1500(-C=N); 1540 (NH bends); 1220-1020 (C-N-C); 700-650 (C---H bends);
PMR spectra were recorded on a perkin-elmer R-32 spectometre using TMS as reference; and which showed the following signal: $^{\delta}$: 2.59 (3H,s,CH3); 3.55-3.99 (3H,s,-OCH3); 5.1(2H,s,--OCH2); 6.7-7 (m,Ar-H and 6-pyrimidino protones)
IR(VIIa,R=p-methoxy phenyl) (KBr, cm^{-1}):3300(N-H); 2900(aromatic stretching);1675(sec amideC=O);1540(N-H bands);1070(C-N-C);690(C-H band);
PMR(VIIa,R=p-methoxy phenyl)
($CDCl_3$):2.58(3H,S,CH_3);5.1(2H,S,-OCH_2);3.5(3H,S.-OCH_3);6.7-7.0(10H,m,Ar-H;6-pyrimidino protons);8.1(1H,S,=CH);

TABLE 1:chacterisation data and antifungal activity of compounds(viia-e;R= p-methoxy phenyl)

C.NO.	M.F.	M.P.(C^0)	Antifungal activity zone of inhibition Inmm at 100 ug/ml	
			Penicillium	*F . oxysporium*
Viia	$C_{22}H_{20}N_6O_3$	275-76	8.4	8.0
Viib	$C_{24}H_{24}N_6O_5$	268-72	10.3	11.0
Viic	$C_{23}H_{22}N_6O_4$	282	9.2	10.0
Viid	$C_{23}H_{22}N_6O_5$	276	8.1	8.7
Viie	$C_{20}H_{18}N_6O_4$	264	7.8	8.7

TABLE 2: chacterisation data and antifungal activity of compounds(viia-e;R= phenyl)

C.NO.	M.F.	M.P.(C^0)	Antifungal activity zone of inhibition Inmm at 100 ug/ml	
			Penicillium	*F . oxysporium*
Viia	$C_{21}H_{18}N_6O_2$	270-72	8.2	8.5
Viib	$C_{23}H_{22}N_6O_4$	264-68	12.1	13.5
Viic	$C_{22}H_{20}N_6O_4$	280	7.2	8.3
Viid	$C_{22}H_{20}N_6O_4$	278	7.2	___
Viie	$C_{19}H_{16}N_6O_3$	264	___	___

RESULT AND DISSUSION
The pharmalogical report of compounds were evaluated for the antifungal activity by adopting inhibition zone technique [17].

The percentage of zone of inhibition was calculated by formula

$$\frac{C—T}{C} \times 100$$

Where C is the diameter of the zone of micro—organism in check and T is the diameter of disc.
The results are tabulated in the above (table1-2) revealed that in N-Benzylidene- pyrimidines series , the activity increased appreciably by substitution of phenyl by dimethoxy phenyl and the increase was slightly greater on F-Oxysporium than on penicillium.But compounds viid and viie did not show any effect.

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