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## SYNTHESIS AND SPECTRAL STUDY OF 2-(4-(((SUBSTITUTEDPHENYL)IMINO)METHYL)PHENOXY)ACETOHYDRAZIDE

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### ABSTRACT

#### Keywords:

Synthesis,  
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Hydrazine hydrate,  
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Heterocyclic Compounds having a valuable place in a Heterocyclic Chemistry and Heterocyclic Compounds having an excellent properties such as drugs, dyes etc, These compounds shows anti-microbial, anti-fungal, anti-bacterial, anti-inflammatory, anti-diabetic, anti-hypertensive etc. properties. In present investigation, we have prepared 2-4-(((substitutedphenyl)imino)methyl)phenoxy)acetohydrazide from amine of (4-[[substitutedphenyl]imino]methyl)phenoxy)acetic acid and Hydrazine hydrate in presence of ethanol. The intermediate (4-[[substitutedphenyl]imino]methyl)phenoxy)acetic acid from (4-formylphenoxy)acetic acid and substitutedaniline by using ethanol as a solvent. Compound having an excellent properties regarding as per as anti cancer and HIV as compare to this compound. Physical properties of pure crystallized substance 2-4-(((substitutedphenyl) imino)methyl)phenoxy)acetohydrazide like M.P., elementary analysis and spectral data of compound and such as IR and NMR will be evaluated and confirm the structure of compound.

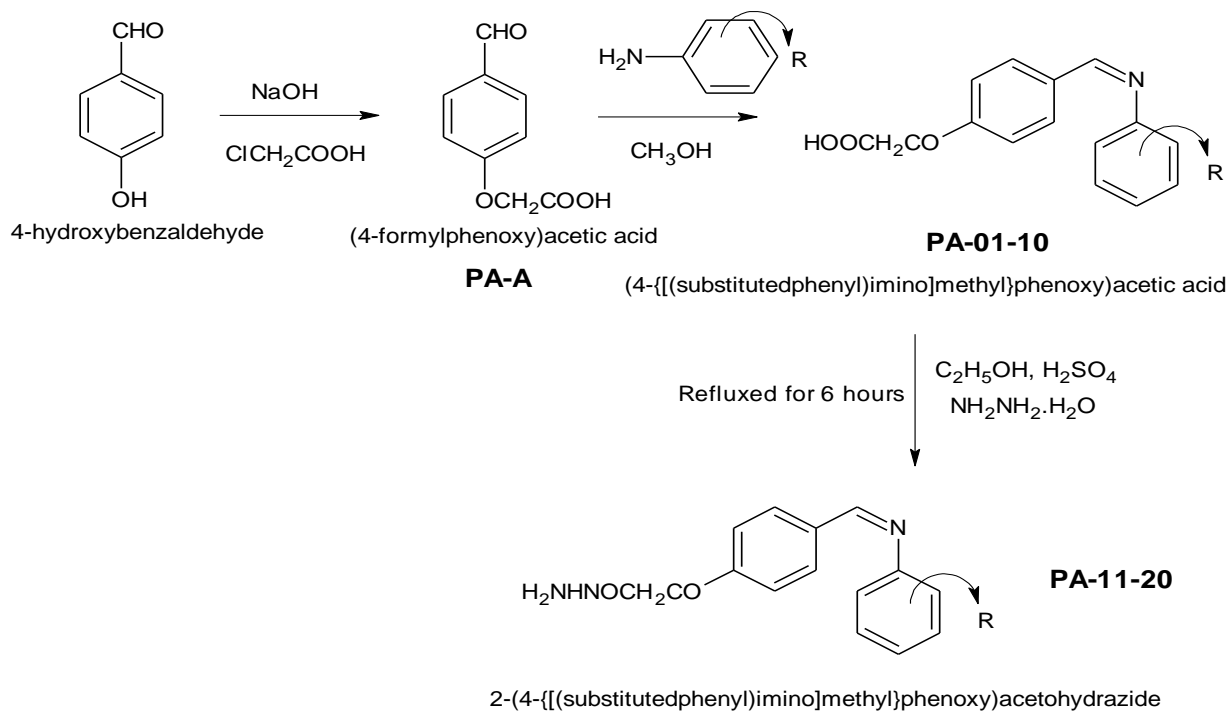
**INTRODUCTION:** The Schiff bases constitute one of the most active class of the compound posses biological activities such as anti-tubercular<sup>1</sup>, anticancer<sup>2</sup>, plant growth inhibitors<sup>3</sup>, insectisidal<sup>4-5</sup>, CNS depressant,<sup>6</sup>, antibacterial<sup>7-14</sup>, The Schiff bases can be prepared by the acid catalysed reaction of amine and ketone or aldehyde. Schiff bases are used as starting material for the synthesis of various bioactive heterocyclic compound like 2- azetidiones, benzoxazines and formazans. The Schiff bases are an intermediate in the biologically important trasamination reactions.

The Schiff bases used as a protective agent in natural rubber<sup>15</sup> and amino protective groups in organic synthesis. Dabholkar and More<sup>16</sup> have synthesized

Schiff bases under microwave irradiation. The Schiff bases<sup>17-18</sup> have been synthesized by condensing carbonyl compound and amine in water suspension medium. So we have decided to synthesis 2-(4-(((substitutedphenyl)imino)methyl)phenoxy)acetohydrazide

**Experimental:** Melting points were taken in open capillary tube and were uncorrected. IR spectra (KBr) were recorded on I.R. Spectrophotometer of Buck Scientific Model No. 500 and instrument used for NMR Spectroscopy was Bruker Advance II 400 spectrometer and DMSO used as internal standard. Solvent used were CDCl<sub>3</sub> and DMSO. Purity of the compounds was checked by TLC on silica- G plates.

### Reaction Scheme



#### Preparation of (4-formylphenoxy)acetic acid (PA-A):

To a mixture of 5 gm of 4-hydroxy benzaldehyde, 4gm of chloroacetic acid and 30 ml of water contained in a 250 ml round bottomed flask. Add slowly a solution of 3.3 gm of sodium hydroxide in 87.5 ml of water. Heat the mixture to boiling with stirring and reflex for 3 hours the solution acquires a red brown colour Cool and acidity the solution with 7.5 ml. of con. HCl .the solid crystals appear in the solution. The yield of the product was 70% and the product melts at 155°C. Found: C(59.98%) H(4.45%), Calcd. for C<sub>9</sub>H<sub>8</sub>O<sub>4</sub>: C(60.00%) H(4.48%)

#### Preparation of {4-[(phenylimino)methyl]phenoxy} acetic acid (PA-01-10):

A mixture of (4-formyl phenoxy)acetic acid( 0.01M), aniline( 0.01M) and methanol(30ml) was heated for about 5 min. in a beaker (250 ml) to get a clear solution. The solution was kept overnight at room temperature to get the respective crude solid which was recrystallized from ethanol to obtain the pure crystals of {4-[(phenylimino)methyl]phenoxy}acetic acid respectively. IR; PA-04 (Cm<sup>-1</sup>): 3050(C-H, aromatic), 2920(C-H, aliphatic ring), 2580-OH,carboxylic, 1720(>C=O), 1660(>C=N-), 1580(>C=C<, aromatic ring), 1480(-CH<sub>2</sub>-, band.), 1375(-CH<sub>3</sub>, band.), 1285(C-N). <sup>1</sup>H NMR (DMSO);

PA-07: 4.6911, singlate (2H) (-CH<sub>2</sub>-), 8.3424, singlate (1H) (Ar-CH=N-), 6.8918-8.3976, multiplate (8H) ( Ar-H), 9.7746, singlate (1H) (-OH).

#### Preparation of 2-(4-((substitutedphenyl)imino)methyl)phenoxy) aceto hydrazide (PA-11-20):

(4-((substitutedphenyl)imino)methyl)phenoxy)acetic acid ( 0.01M) dissolved in absolute ethanol. Hydrazine hydrate (99%, 0.02M) and few drops of conc. Sulphuric acid were added. The reaction mixture was refluxed for 6 hours. The resulting solid obtained was filtered, dried and crystallized from hot water. IR; PA-11 (Cm-1): 3340(>NH),3030(=C-H, aromatic), 2930(C-H, stretch), 1720(>C=O), 1620(>C=N-), 1590(>C=C<, aromatic ring), 1450(-CH<sub>2</sub>-, band.), 1260(-CN), 1110(C-O-C). <sup>1</sup>H NMR (DMSO); PA-16: 2.5662, singlate (2H) (-NH<sub>2</sub>) 4.6669, singlate (2H) (-CH<sub>2</sub>-), 7.6755, singlate (1H)(-NH), 8.5347,singlet (1H) (Ar-CH=N), 6.8757-8.5615, multiplate (8H) ( Ar-H).

TABLE 1: PHYSICAL CONSTANT OF 2-{4-[(phenylimino)methyl] phenoxy} acetohydrazide

No.	Sub. No.	R	Molecular Formula	Mol. Wt. (g/m)	Yield (%)	M. P. °C	Carbon (%)		Hydrogen (%)		Nitrogen (%)	
							Found	required	Found	required	Found	required
1	PA-11	1-Phenyl	C <sub>15</sub> H <sub>15</sub> N <sub>3</sub> O <sub>2</sub>	269.29	83	260	66.87	66.90	5.60	5.61	15.57	15.60
2	PA-12	1-Naphthyl	C <sub>19</sub> H <sub>17</sub> N <sub>3</sub> O <sub>2</sub>	319.35	75	235	71.44	71.46	5.35	5.37	13.13	13.16
3	PA-13	-4-CH <sub>3</sub>	C <sub>16</sub> H <sub>17</sub> N <sub>3</sub> O <sub>2</sub>	283.32	81	210	67.80	67.83	6.01	6.05	14.80	14.83
4	PA-14	-3-CH <sub>3</sub>	C <sub>16</sub> H <sub>13</sub> N <sub>3</sub> O <sub>2</sub>	283.32	78	198	67.80	67.83	6.01	6.05	14.80	14.83
5	PA-15	-2-NO <sub>2</sub>	C <sub>15</sub> H <sub>14</sub> N <sub>4</sub> O <sub>4</sub>	314.29	80	238	57.30	57.83	4.45	4.49	17.80	17.83
6	PA-16	-3-NO <sub>2</sub>	C <sub>15</sub> H <sub>14</sub> N <sub>4</sub> O <sub>4</sub>	314.29	75	170	57.30	57.32	4.45	4.49	17.80	17.83
7	PA-17	-4-NO <sub>2</sub>	C <sub>15</sub> H <sub>14</sub> N <sub>4</sub> O <sub>4</sub>	314.29	82	160	57.30	57.32	4.45	4.49	17.80	17.83
8	PA-18	-2-Cl	C <sub>15</sub> H <sub>14</sub> ClN <sub>3</sub> O <sub>2</sub>	303.74	76	240	59.28	59.31	4.62	4.65	13.80	13.83
9	PA-19	-3-Cl	C <sub>15</sub> H <sub>14</sub> ClN <sub>3</sub> O <sub>2</sub>	303.74	85	245	59.28	59.31	4.62	4.65	13.80	13.83
10	PA-20	-4-Cl	C <sub>15</sub> H <sub>14</sub> ClN <sub>3</sub> O <sub>2</sub>	303.74	79	231	59.28	59.31	4.62	4.65	13.80	13.83

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