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Synthesis and biocidal screening of Bromo-Substituted 4-biphenyl acetamides derivatives.

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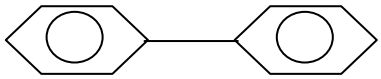
Abstract
The present paper deals with the synthesis of Bromo-Substituted 4-biphenyl acetic acid amides by condensation of corresponding acid chlorides with suitable amines. the structure of newly synthesized compounds were elucidated on the basis of their IR, TLC and elemental analysis data. The compounds were also screened for their anti-bacterial and anti-fungal activity.

Key Words – Synthesis, biphenyl derivatives, spectral and biocidal activity.

Biphenlys are the polynculear aromatic hydrocarbons having more than one aromatic nucleus. The two aromatic nuclei are attached to each other at only one point. Thus, biphenyls with independent benzene rings have been catagorizzed in the class of polyphenyl compounds or isolated polynuclear hydrocarbons.



Biphenyls and polynculear aromtic hydrocarbons (PAHs) have been reported in the literature to found naturally at several places in the environment. American Chemical Society reported a novel palladium.
catalyzed ullmann- type reductive coupling of aryl-halides, under an air atmosphere and in equeous acetone to obtain different type of biphenyl derivatives. [11-12] The newly synthesized Bromo-Substituted 4- biphenyl actamides derivatives are biocidal screening to evaluate their possible use as antifungal and antibacterial activities.

Experimental

All the chemicals used for the synthesis were of Analar grade. Distill solvent were used throughout the experiment. This media was used for the growth of fungus. Thus, first of all prepared this media according to our requirement. 500 ml. media was sufficient, so that 250 ml. media was sufficient for 12 petric plates. The quantity of contents of this particular media is an follows :

Czapeck's Media (fungus media)

For 1 Litre Media

Agar-Agar	:	15.0 gm
KH_2PO_4	:	01.0 gm
Mg So_4. $2H_2O$	:	00.5 gm
KCl	:	01.0 gm
Fe SO_4	:	Traces
Yeast Powder	:	00.5 gm
Na No_3	:	02.0 gm

Dextrose	:	10.0 gm.
Distilled water	:	1 Litre

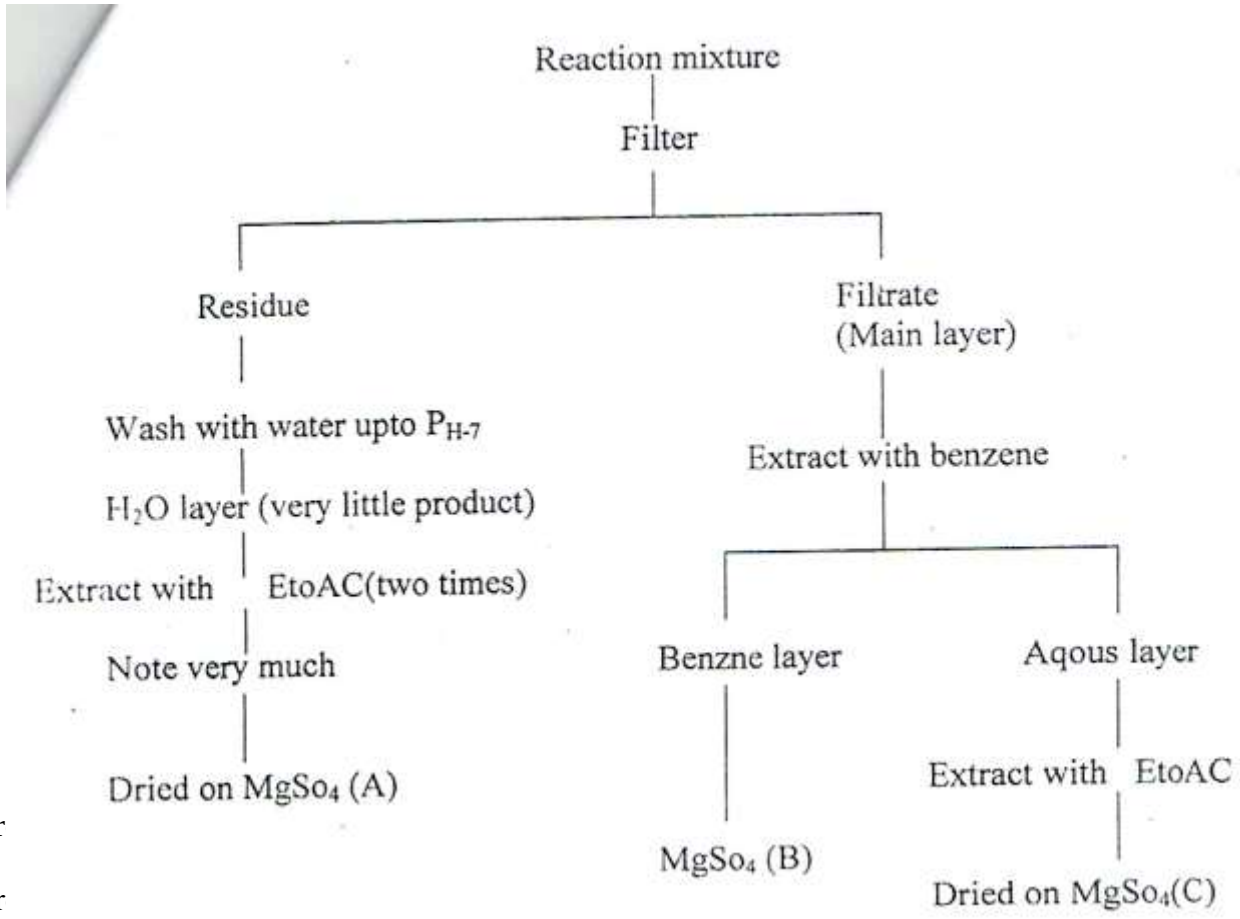
Synthesis of Compounds

This paper includes the synthesis of simple Bromo-Substituted 4-biphenyl acetamides analoges. The syhthesis of these analoges containing three step. In 1st step converted 4-biphenyl acetic acid[13] (4-BPAA) into 3, 3 Dibromo-4-Biphenyl acetic acid

Dissolved 4-BPAA (1gm) in glacial acetic acid (25 ml) and add bromine (1ml) of brmine in (1 ml) of acetic acid under stirring on magnetic stirrer for half and hour in ice-cool medium, then add ice-cool water (100ml) in the reaction mixture. Light yellow crystalline solid separated out, stirred the reaction mixture again for 15 minutes at room temperature and filter through the buchnel funnel.

2nd Step :- Preparation of 3, 3' – Dibromo-4 Biphenyl – acety1 chloride (1_B) from 3, 3' – Dibromo-4 Biphenyl-acetic acid (1).

3, 3'- Dibromo-4-biphenyl acetic acide (1) (500mg) dissolved in dry benzene (100ml) then add thionyl chloride (0.5 ml) dropwise alongwith stirring in a R.B., flask of 50ml then reflux the reaction This scheme is clear from following diagramatic representation.



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chloride obtained as a viscous oil.

3rd Step :- Preparation of 3, 3'-Dibromo-N-phenyl – 4 – biphenyl acetamide (12_A) from 3, 3'-Dibromo-4-Biphenyl acetyl chloride (1_B).

Dissolved Anilline (250mg) in benzene (10ml) in a R.B. flask and add 4N-NaOH in it. Take 1_B (542 mg) and dissolved it in dry benzene

(10ml), then pour it slowly drop wise under stirring in the R.B. flask. Stirring continue for 3 hours and workup the reaction mixture after 20 hours.

The same procedure were synthesized Dibromo 4-Biphenyl acetamide derivative such as –

A_1 - (3, 3' Dibromo – N – Phenyl – 4 Biphenyl acetamide)

A_2 - (3, 3' Dibromo – N – Phenyl – 4 Biphenyl acetamide)

A_3 - (3, 3' Dibromo – N – P – Tolune – 4 - Biphenyl acetamide)

A_4 - (3, 3' Dibromo – N – a – Naphthyl– 4 Biphenyl acetamide)

A_5 - (3, 3' Dibromo – N – Phenyl – Thiomide – 4 Biphenyl acetamide)

A_6 - (3, 3' Dibromo – N – Benzyl – 4 Biphenyl acetamide)

Result and Discussion

Biocidal Activity

The compounds were also screened for their antifungal activity of disc-plate method(15 against C.lunata Seven days old culture were used as test organism which were grown on dextrose-agar medium. The fungi were grown at R.T. 10 ± 30C and the average of three replications was recorded with control plate. The percentage inhibition (16) was calculated as (C-T) x 100/C where C-diameters of fungus colony in control plate and T-diameter of Fungus colony in test

plate. The percentage inhibition (16) was calculated as (C-T) x 100/C where C-diameters of fungus colony in control plate and T-diameter of Fungus colony in test plate. The compounds A1, A2 & A3 showed high activity, while other A4, A5& A6 compounds showed less activity against the above organism.

RESULTS CAN BE SUMMERISED AS GIVEN BELOW

S.No.	Code	Experimental yield (100%)	Yield obtained (%)
1.	A_1	570mg	270mg (43.36%)
2	A_2	480 mg	290mg(60.42%)
3	A_3	585 mg	470mg (80.34%)
4	A_4	630 mg	570mg (90.48%)
5	A_5	640 mg	500mg (78.12%)
6	A_6	880 mg	780gm (88.64%)

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