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SYNTHESIS OF METHYL 2-[6- (4-BROMOPHENYL)-1,2-DIHYDRO-2-IMINO-4-METHYLSULFANYLPYRIDINE-1-LY]-3-PHENYLPROPANOATE & METHYL 2-[6- (4-BROMOPHENYL)-1,2-DIHYDRO-2-IMINO-4-METHYLSULFANYLPYRIDINE-1- LY]-3-PROPANOATE UNDER MICROWAVE IRRADIATION.

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Abstract : Polysubstituted iminopyridines Methyl 2-[6- (4-bromophenyl)-1,2-dihydro-2-imino-4-methylsulfanylpyridine-1-ly]-3-phenylpropanoate & Methyl 2-[6-(4-bromophenyl)-1,2-dihydro-2-imino-4-methylsulfanylpyridine-1- ly]-3-propanoate were synthsized by the action of α – amino acid esters on 6-aryl-3-cyano-4-methylsulfanyl-2H-pyran-2-one under microwave irradiation. Synthesized compounds were validated by elemental and spectral data. Whole process was economical and eco-friendly.

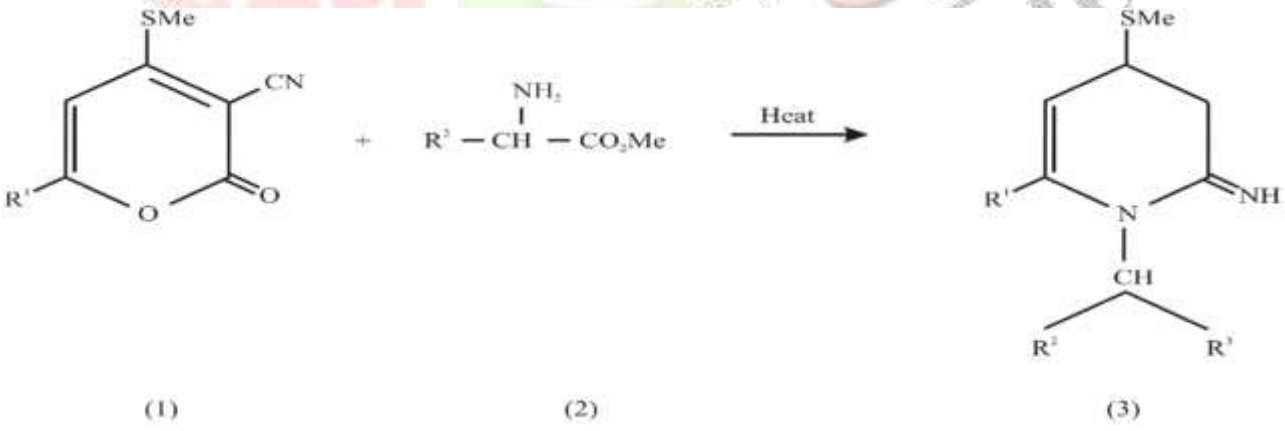
Key Words : Polysubstituted iminopyridines, Microwave irradiation, Eco-friendly, Chalcones 6-aryl-3-cyano-4-methylsulfanyl-2H-pyran-2-one, α - amino acid esters.

Introduction : The world is full of a large no. of heterocyclic compounds in the form of medicines and other natural products. Heterocyclic compounds bears one hetero atom other than carbon atoms.

Heterocyclic chemistry is one of the most involved, theoretical and practical branches of organic chemistry. As a consequence, heterocyclic compounds are commonly studied in chemistry. Because of the obvious application of heterocyclic compounds in pharmaceuticals, medicine, agriculture, plastics, polymers and other industries it is a vast and growing chemical field. Heterocyclic compounds are common in nature. They may be used in the treatment of infectious diseases because of their therapeutic properties. Many synthesized heterocyclic compounds were successfully used as therapeutic agents in the laboratories. Heterocycles form the most important classical biological and industrial divisions of organic chemistry by far. The bulk of pharmaceuticals and biologically active agrochemicals are heterocycles, while heterocycles are countless additives or modificators for industrial applications such as cosmetic reprography, storage of information and plastics. The ability to manifest replacements around a core scaflop in three-dimensional specified representations is one of the striking structural features of heterokycles that continue to have great advantage in the drug industry. Heterocycles have been one of the major areas in organic chemistry science for over a hundred years. They contributed to the creation and understanding of life-processes and efforts to improvement of life quality from a biological and industrial perspective. More than two-thirds of the approximately 20 million chemical compounds found at the end of the second millennium are wholesome or partly aromatic, with about half being heterocycular. It is well known that heterocycling occurs in any form of organic compound which is of interest to electronics, biology, optics, pharmacology, materials science etc. My research work is also on synthesis of a specific heterocyclic compound known as iminopyridine. It was synthsized by the action of α – amino acid esters on 6-aryl-3-cyano-4-methylsulfanyl-2H-pyran-2-one under microwave irradiation. It was economical and environment friendly.

Experimental Section : Polysubstituted 2-iminopyridines were synthesized by the action of α- amino acid esters on (1) under microwave irradiation. All the chemicals used in the reaction were of Laboratory grade. Scheme -1 shows the whole reaction process where R_1, R_2 and R_3 are as follows :

R_1 = (i) 4-BrC_6H_4, (ii) 4-BrC_6H_4 R_2 = (i) CH_2Ph, (ii) Me R_3 = (i) CO_2Me , (ii) CO_2Me

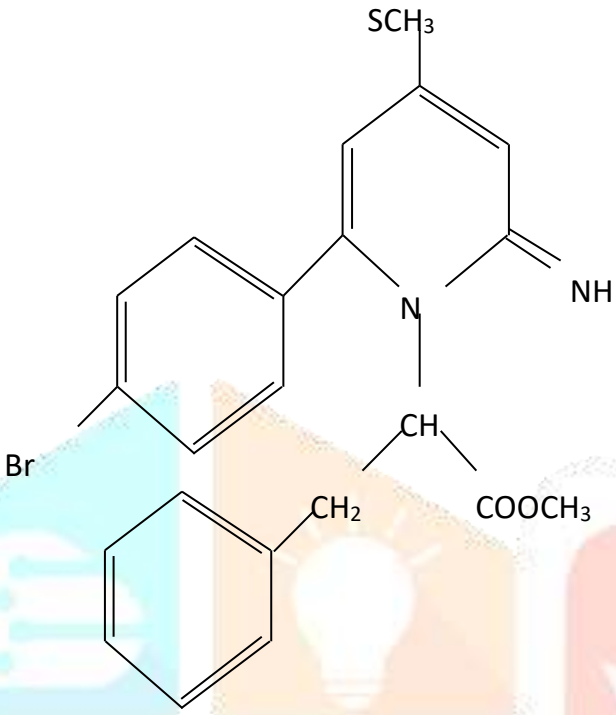


(1) (2) (3)

Scheme -1

Result & Discussion : Products were synthesized and characterised by elemental analysis data and spectral data which are given below :

Compound (3) (i)

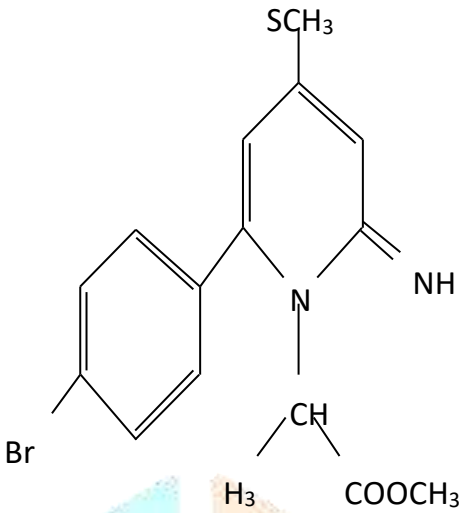


Methyl 2-[6- (4-bromophenyl)-1,2-dihydro-2-imino-4- methylsulfanylpyridine-1-ly]-3-phenylpropanoate

- **Analytical data**: Crystalline Powder ; mp 152°C; Yield 52% (Found : C, 57.76 ; H, 4.59 ; N, 6.12 ; **Calc. for $C_{22}H_{21}BrN_2O_2S$** : C, 57.72 ; H, 4.68 ; N, 6.05%).
- **Spectral data**: NMR: $\delta_H(CDCl_3)$ 2.41 (3H, s, SCH_3), 3.22 (2H, m, CH_2), 3.70 (3H, s, $COOCH_3$), 4.92 (1H, m, CH), 5.43 (1H, br s, NH), 6.13 (1H, s, 3-H), 6.79 (1H, s, 5-H), 7.42 (5H, m, Ar-H), 7.56 (2H, d, J 9 Hz, Ar-H), 7.92 (2H, d, J 9 Hz, Ar-H).

  IR: υ_{max}/cm^{-1}3395(NH), 1745 (CO), Mass: m/z 458(M^++2), 456 (M^+), 399, 397, 367, 365, 296, 294,281, 279.

Compound (3) (ii)



Methyl 2-[6- (4-bromophenyl)-1,2-dihydro-2-imino-4 - methylsulfanylpyridine-1- ly]-3-propanoate

- **Analytical data**: Crystalline Powder ; mp 147°C; Yield 55% (Found : C, 50.39 ; H, 4.46 ; N, 7.34 ; **Calc. for $C_{16}H_{17}BrN_2O_2S$** : C, 49.95 ; H, 4.25 ; N, 7.65%).
- **Spectral data**: NMR: $\delta_H(CDCl_3)$ 1.71 (3H, d, J 9 Hz, CH_3), 2.54 (3H, s, SCH_3), 3.70 (1H, q, CH), 3.80 (3H, s, $COOCH_3$), 5.42 (1H, br s, NH), 6.22 (1H, s, 3-H), 6.83 (1H, s, 5-H), 7.45 (2H, d, J 8.7 Hz, Ar-H), 7.90 (2H, d, J 8.7 Hz, Ar-H).

  IR: υ_{max}/cm^{-1}3390(NH), 1730 (CO), Mass: m/z 382(M^++2), 380 (M^+), 323, 321, 281, 279.

Conclusion : - The above method of synthesis of Polysubstituted iminopyridine under microwave irradiation technique offers advantages of speedy reaction rates and better yield. All the compounds were characterized by elemental data and spectral data. The technique was eco friendly and economical.

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