An executive summary of the final report of the work done on the Minor Research Project of **Dr. Divya N.Shetty**entitled **"Microwave assisted synthesis of heterocyclic compounds containing oxygen and sulphur atoms- A green approach"** sanctioned by UGC vide sanctioned letter no. **MRP(S)-0499/13-14/KAMA002/UGC-SWRO Dated: 28th March 2014.**

Heterocyclic compounds hold a special place among pharmaceutically significant natural products and synthetic compounds. The remarkable ability of heterocyclic nuclei to serve both as biomimetics and reactive pharmacophores has largely contributed to their unique value as traditional key elements of numerous drugs. Conventional methods of organic synthesis are orders of magnitude too slow to satisfy the demand for generation of such compounds.

Oxygen and sulphur heterocycles are abundant in nature and are of great significance to life because their structural subunits exist in many natural products such as vitamins, hormones, antibiotics, and alkaloids, as well as pharmaceuticals, herbicides, and dyes.

The Microwave assisted synthesis of heterocyclic is a solvent-free microwave approach which opens up numerous possibilities for conducting rapid organic synthesis and functional group transformations more efficiently. Additionally, there are distinct advantages of these solvent-free protocols since they provide reduction or elimination of solvents thereby preventing pollution in organic synthesis at source. The chemo-, regio- or stereo selective synthesis of high-value chemical entities and parallel synthesis to generate a library of small molecules will add to the growth of microwave-enhanced reactions in the near future.

In the present work an efficient synthesis of oxazoles and thiazoles using microwave is carried out. Clean reaction profile and good purity of the obtained product in some of the advantages associated with our protocol. The synthesized product were characterized by IR studies.

Preparation of (4*E*)-4-(4-nitrobenzylidene)-2-phenyl-1,3-oxazol-5(4*H*)-one

A mixture of p-nitrobenzaldehyde (0.25 moles), hippuric acid (44.8 gm, 0.25 mole), anhydrous sodium acetate (15 gm), and acetic anhydride (59 ml) was kept in Microwave Oven. The mixture become almost solid, and then as the temperature rises, it gradually liquefies and turns deep yellow in color. After completion of the reaction monitored by TLC the reaction is allowed to cool and ethanol (100 ml) is added slowly to the contents of the

flask. After allowing the reaction mixture is left to stand overnight, the yellow color product is filtered and washed with ice cold ethanol and finally with boiling water and recrystallized in ethanol to yield.

Elemental analysis: $C_{16}H_{10}N_2O_4$: C, 65.3; H, 3.3; N, 9.5

IR (KBr cm^{-1}): 3315, 1707, 1584, 1517, 1387

Yield: 17g

m.p: 140^0C

SYNTHESIS OF 4-(2-BROMO-4-METHOXYPHENYL)-1,3-THIAZOL-2-AMINE

A mixture of 2-bromo-4-methoxyacetophenone (0.05mol), thiourea (0.1mol), iodine (0.05mol) and distilled water (30ml), was taken in a round bottom flask. The mixture was refluxed for about 4h and poured into crushed ice to get the solid which is basified with sodium hydroxide. The product was filtered and recrystallized from ethanol. The yellow colored product of 4-(2-bromo-4-methoxyphenyl)-1,3-thiazol-2-amine was separated.

IR (KBr cm^{-1}): 3120 (C-H), 1622 (C=N)

Elemental analysis (%): $C_{10}H_9BrN_2OS$; C, 42.10; H, 3.1; N, 9.43