Objective of Research Work:

Microwave assisted organic synthesis (MAOS) has been able to reduce chemical reaction time significantly, but it is also reduced side reactions, increased yields, and improved reproducibility. Therefore, many academic and industrial research groups are already using MAOS as a technology for rapid reaction optimization, for the efficient synthesis of new chemical entities, or for discovering and probing new chemical reactivity and also applied to synthesis of various 2,4-thiazolidinedione derivatives as well as the basic nucleus also.

In literature review, several methods has been reported for the synthesis of 2,4-thiazolidinediones, but most of the methods are very complicated, having longer reaction time & require very advanced synthetic technology. Also chemicals & reagents which are required for synthesis are not easily available & expensive. So in the present investigation, it is decided to synthesize different 2, 4-thiazolidinedione derivatives by efficient, cost effective, environmentally friendly & convenient microwave technique.

The purpose of this investigation is to synthesize different 2, 4-thiazolidinedione derivatives as well as Schiff’s and Manichh’s bases of 2, 4-thiazolidinediones by conventional method as well as by microwave method and to characterize them by melting point, TLC, Elemental Analysis, IR and NMR spectra and also the comparison between conventional method & microwave method with respect to the yield and the reaction time.

- Literature survey clearly indicates that 2, 4-thiazolidinedione motif can be considered as an important pharmacophore in the field of medicinal chemistry which can be used for conjugating it with other bioactive molecules such as antibacterial, antifungal, anticonvulsants, antiviral or antioxidant agents etc. due to its potent pharmacological activity.
- Synthesized derivatives shall be pharmacologically evaluated for Antidiabetic, Antimicrobial and antioxidant activity