

## Synthesis of some New 1,2,4,5-Tetrazine Derivatives Via Diels-Alder Reaction

**Shaymaa K. Younis**

*Department of Chemistry  
College of Science  
Mosul University*

*Email : shaymaa\_chemistry@yahoo.com*

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### ABSTRACT

A rapid, sufficiency and economic with no pollution method was adopted to synthesize several 1-aryl-2,5-dione pyrrolidino[3,4-d]-3,6-diphenyl-3,4,5,6-tetrahydro pyridazino [1,2-a]-3,6-diaryl -1,2,3,6-tetrahydro-1,2,4,5-tetrazine compounds (4a-f) and (5a-f) using a solid phase (solvent-free ) microwave irradiation technique.

The reaction of dibenzylidene hydrazine (1a) as diaza-heterodiene with N-aryl maleimide compounds (2a-f) as cyclic dienophile yielded the corresponding 1-aryl-2,5-dione pyrrolidino[3,4-d]-3,6-diphenyl-3,4,5,6-tetrahydro pyridazine derivatives (3a-f) via Diels-Alder reaction that proceeded through intermolecular 1,4-cycloaddition mechanism and induced by microwave irradiation.

Similarly, compounds (3a-f) as cyclic hetero dienophile have been converted directly to the 1,2,3,6-tetrahydro-1,2,4,5-tetrazine derivatives (4a-f) and (5a-f) in presence of diarylidene hydrazines (1b-c) as diaza-heterodiene by means of Diels-Alder reaction induced by microwave irradiation and through intermolecular 1,4-cycloaddition mechanism too.

The reaction time has been brought down from hours to few minutes in this technique as compared with the conventional method. This method was, also, efficient, fast economic and environmental friendly.

All the prepared compounds were confirmed by the available physical and spectral methods.

**Key words** : Diarylidene hydrazine compounds, microwave irradiation, Diels-Alder reaction, 1,2,4,5-tetrazine compounds and pyridazine compounds.

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**-5,4,2,1**

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-6,3-[1,2-a]

-6,5,4,3-

-6,3-[3,4-d]

-5,2

-5,4,2,1-

-6 ,,3,21-

(1a) .( )

-5,2- -1 (2a-f) -N

- (3a-f) -6,5,4,3- -6,3-[3,4-d]

1,4-

(1b-c) (3a-f)

5a-) (4a-f) -5,4,2,1- -6,3,2,1

. - (f)

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