

Third Laureate Fundamental Research

26th Khwarizmi International Award (KIA)



- **Project Title:** New and efficient methods for the synthesis of 1,3,4-oxadiazole derivatives
- **Executive Organization:** University of Zanjan
- **Researcher:** Professor Dr. Ali Ramazani – University of Zanjan
- **Collaborator Organizations:** Iran National Science Foundation: INSF

● **Abstract:**

1,3,4- Oxadiazole is a heterocyclic compound containing an oxygen atom and two nitrogen atoms in a five-membered ring. Among heterocyclic compounds, 1,3,4- Oxadiazole has become an important construction motif for the development of new drugs. Compounds containing 1,3,4-oxadiazole cores have a broad biological activity spectrum including antibacterial, antifungal, analgesic, anti-inflammatory, antiviral, anticancer, antihypertensive, anticonvulsant, and anti-diabetic properties. They have also attracted interest in medicinal chemistry as surrogates for carboxylic acids, esters and carboxamides. The ability of 1,3,4- Oxadiazole heterocyclic compounds to undergo various chemical reactions has made them important for molecule planning because of their privileged structure, which has enormous biological potential. The synthesis of novel 1,3,4- Oxadiazole derivatives, and investigation of their chemical properties and biological behavior has accelerated in the last two decades. Taking into account the importance of these compounds to both heterocyclic and medicinal chemistry, we have decided to offer the simple and one-pot synthesis approaches for obtaining the 1,3,4- Oxadiazoles using N-isocyaniminotriphenylphosphorane ($\text{Ph}_3\text{P}=\text{N}-\text{N}=\text{C}$) via multicomponent reactions.

