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Synthesis of 2,4,5-imidazolidine and 4,5-imidazolidinedione-2-thione derivatives attached active heterocyclic moiety

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2,4,5-imidazolidinetrions and 2-thio-4,5-imidazolidinedione are known for their herbicide, plant growth regulator, and fungicide properties.

We synthesized 2,4,5-imidazolidinetriones and their derivatives by the treatment of N-alkylurea and oxalyl chloride. And also we synthesized 2-thio-4,5-imidazolidinediones and their derivatives by the treatment of N-alkylthiourea and oxalyl chloride. In the development of new agrochemicals, we chose to associate 1,2-benzisothiazol-3-one-1,1-dioxide, benzimidazole and heterocyclic derivatives as a new structure in which each part could serve as an active component for the desired property. 1-Benzoimidazole-1-yl-methyl-3-imidazolidine-2,4,5-trione, 1-Benzoimidazole-1-yl-ethyl-3-imidazolidine-2,4,5-trione, 1-Benzoimidazole-1-yl-phenyl-3-imidazolidine-2,4,5-trione, 2-[(3-Methyl-2,4,5-imidazolidinetrionyl)methyl]-1,2-benzisothiazol-3-one-1,1-dioxide, 2-[(3-Ethyl-2,4,5-imidazolidinetrionyl)methyl]-1,2-benzisothiazol-3-one-1,1-dioxide, 2-[(3-Phenyl-2,4,5-imidazolidinetrionyl)methyl]-1,2-benzisothiazol-3-one-1,1-dioxide, 1-(3a,7a-Dimethyl-1,3-dioxo-1,3,3a,4,7,7a-hexahydro-isoindol-2-ylmethyl)-3-methyl-imidazolidine-2,4,5-trione, 1-(3a,7a-Dimethyl-1,3-dioxo-1,3,3a,4,7,7a-hexahydro-isoindol-2-ylmethyl)-3-ethyl-imidazolidine-2,4,5-trione, 1-(3a,7a-Dimethyl-1,3-dioxo-1,3,3a,4,7,7a-hexahydro-isoindol-2-ylmethyl)-3-phenyl-imidazolidine-2,4,5-trione etc.