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Synthesis of quiral oxazolines and thiazolines from triethyl phosphonoacetate

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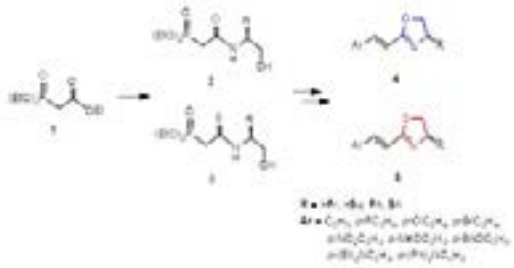
Tuberculosis (TB) is a disease which results from infection by Mycobacterium tuberculosis (Mtb) and it has been responsible for the death of almost 30 million of people around the world. In Mexico, on year 2012, about 19,735 new cases of tuberculosis were reported, in which roughly 81% were pulmonary type and 395 were drug resistant occurrences. Due to this cause, it is of great importance to develop new chemotherapeutic agents derived from oxazolines and thiazolines with the purpose of obtaining better results on the activity of anti-TB, with low cytotoxicity and reducing the appearance of resistant strains. The objective of this project is synthetize oxazolines 4 and thiazolines 5 under microwave irradiation (MW), which will reduce the reaction times, the quantity of the reagents and the energy consumption. In order to achieve this goal, it was used triethyl phosphonoacetate 1 with a variety of amino alcohols to obtain the amides 2 and thioamides 3, which later they were treated with K_2CO_3 and EtOH under MW conditions, followed by the addition of various aromatic aldehydes. In conclusion, oxazolines 4 and thiazolines 5 were successfully obtained with short reaction times, without catalyzer utilization, and with the minimum amount of solvent.



Biography

Miguel Angel Reyes González has obteined his degree of Industrial Chemist from Morelos State Autonomus University, later he has worked two years in the water tratament industry. In 2012, he has completed his Master's degree in Science from Morelos State Autonomus University. In 2016, he has received his PhD degree in Science from Morelos State Autonomus University. Currently, he is pursuing his Postdoctoral studies from Nuevo León Autonomus University Faculty of Chemistry Sciences in addition to teaching laboratory courses undergraduate level. He has five papers in national and international journals.

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