Synthesis and Fungicidal Activity of Substituted 1-(1-tert-butyl-1H-imidazol-4-yl)-1H-1,2,3-triazoles

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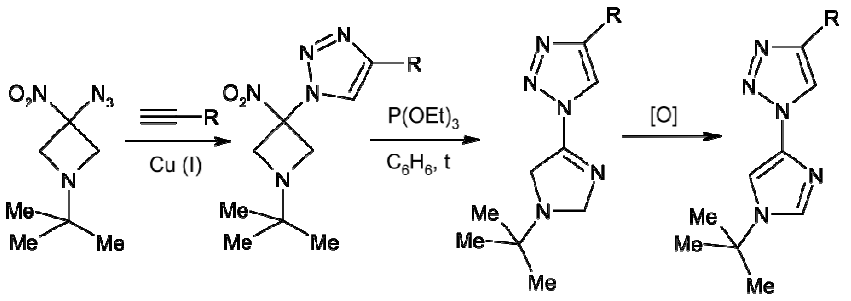

R = H, Me_3Si, cyclo-Pr, C_6H_5, 2-FC_6H_4, 2-ClC_6H_4, 3-ClC_6H_4, 2,4-$Cl_2C_6H_3$, 4-$CF_3C_6H_4$, 3-$CF_3C_6H_4$, 3-$CH_3OC_6H_4$

A series of new 1-(1-tert-butyl-1H-imidazol-4-yl)-1H-1,2,3-triazoles were prepared by reactions of corresponding 1-(1-tert-butyl-3-nitroazetidin-3-yl)-1H-1,2,3-triazoles with triethylphosphite with further oxidation. The 1,4-disubstituted triazoles were obtained by addition of azides to substitude acetylenes in the presence of ascorbic acid and copper(II) sulfate. Their structures were confirmed by ^{1}H, ^{13}C NMR, IR, X-Ray, HRMS and elemental analysis. Most of the synthesized compounds were screened in vitro for their antifungal activity against Rhizoctonia solani, Fusarium oxysporum, Fusarium moniliforme, Fusarium graminearum, Sclerotinia sclerotiorum, Venturia inaequali and Bipolaris sorokiniana. Some of the compounds displayed activities comparable with those of the commercial fungicide Triadimefon.