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# Synthesis of ethoxyphthalimido derivatized thiadizole assembled imidazolidinone and chloroazetidinone systems from common intermediate Schiff's bases and evaluation of their antibacterial activity

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## ABSTRACT

*In present investigation synthesis of 2-(2-(3-(5-((2-methyl-1H-enzo[d]imidazol-1-yl)methyl)-1,3,4-thiadiazol-2-yl)-4-oxo-2-phenylimidazolidin-1-yl)ethoxy)isoindoline-1,3-dione **9a-d** and 3-chloro-4-(4-phenyl)-1-(5-((2-methyl-1H-benzo[d]imidazol-1-yl)methyl)-1,3,4-thiadiazol-2-yl)azetidin-2-one **6a-d** are described. 2-Mehtyl benzimidazole **1** is converted to carbothioamide **3** by the reaction with ethylchloroacetate followed by thiosemicarbazide. It is cyclised to thiadizole **4** by treatment with conc.$H_2SO_4$ and $NH_3$.Condensation of **4** with different araldehyde yielded corresponding Schiff's bases **5a-d**. Compounds **5a-d** has acted as key intermediate for both series of the final compounds. In one pathway, **5a-d** are converted to azetidinone pluged compounds **6a-d** by treatment with chloroacetylchloride in presence of triethylamine. In an another route, reaction of **5a-d** with glycine has afforded the formation of 3-(5-((2-methyl-1H-benzoimidazol-1-yl)methyl)-1,3,4-thiadiazol-2-yl)-2-phenylimidazolidin-4-one **7a-d.** Finally the targeted molecules **9a-d** were obtained by the base induced condensation of **7a-d** with bromoethoxyphthalimide. Structure confirmation was accomplished by spectral studies (IR, 1HNMR, Mass) and elemental analysis of all the synthesized compounds.*

**Keywords:** Bromoethoxyphthalimide; Azitidinone; Benzimidazole; Thiadizole; Chloroacetylchloride.