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Synthesis of Some Novel 1,3,4-Thiadiazole Derivatives as ACE Inhibitors and Cardio-Protective Effect in Isoproterenol-Induced Myocardial Infarction

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SUMMARY. A novel series of novel 1,3,4-thiadiazole have synthesized in excellent yield and characterised by FT-IR, ^{1}H-NMR, ^{13}C-NMR, Mass and elemental analysis. These compounds were assayed for their inhibitory activity against the ACE. The compound **8d** revealed as the most potent analogue of the series exhibiting IC_{50} of 0.95 μmol/L using lisinopril as standard drug. Consequently, compound **8d** was used to further determine its protective effect on isoproterenol (ISP)-induced Myocardial infarction (MI) *via* quantifying the levels of various biochemical markers, such as, ALT, AST, LDH and CPK. Thus, the overall study suggests that, compound **8d** exert protective effect on ISP induced myocardial infarction *via* limiting the oxidative stress.

RESUMEN. Una nueva serie de nuevos 1,3,4-tiadiazoles se han sintetizado con un rendimiento excelente y caracterizado por FT-IR, ^{1}H-NMR, ^{13}C-RMN, análisis elemental y de masas. Estos compuestos se ensayaron para determinar su actividad inhibidora contra la ACE. El compuesto **8d** se revela como el análogo más potente de la serie que exhibe IC_{50} de 0,95 μmol/L usando lisinopril como fármaco estándar. En consecuencia, se utilizó el compuesto **8d** para determinar su efecto protector sobre infarto de miocardio (MI) inducido por isoproterenol (ISP) a través de la cuantificación de los niveles de diversos marcadores bioquímicos, tales como, ALT, AST, LDH y CPK. Así, el estudio sugiere que, en general, el compuesto **8d** ejerce un efecto protector sobre el infarto de miocardio inducido por ISP a través de la limitación del estrés oxidativo.

KEY WORDS: ACE Inhibitors, myocardial infarction, synthesis, 1,3,4-thiadiazole.

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