



Antibacterial Activity of Newly Synthesized 5-Hydrazono-triazoloquinazolines

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SUMMARY. This work was carried out to evaluate the antibacterial activity of new series of 5-hydrazono-[1,2,4]triazoloquinazolines (**1–34**). Antibacterial activity of the target molecules was tested against a variety of species of Gram-positive bacteria as *Bacillus anthracis* (RCMB 0100162-8), *B. subtilis* (RCMB 0100169-3), *Enterococcus faecalis* (RCMB 0100154-2), *Staphylococcus aureus* (RCMB 0100183-9), *S. epidermidis* (RCMB 0100183-9), *Streptococcus pyogenes* (RCMB 0100172-5), *S. bovis* (RCMB 0100174-4), *Micrococcus luteus* (RCMB 0100132-2), and methicillin-resistant *Staphylococcus aureus* MRSA (RCMB 0100194-5) in addition to different Gram-negative bacteria as *Serratia marcescens* (RCMB 01002 72.6), *Salmonella enterica* serovar Typhi (RCMB 0100215-4), *Proteus mirabilis* (RCMB 0100254-2), *Klebsiella oxytoca* (RCMB 0100283-4), *Enterobacter cloacae* (RCMB 0100264-5), *Citrobacter freundii* (RCMB 0100263-6), *Pseudomonas aeruginosa* (RCMB 0100243-5), *Escherichia coli* (RCMB 010052-6) and *Mycobacterium tuberculosis* (RCMB 010094-8). Broth double dilution method was employed to examine the potential antibacterial activity against the aforementioned bacteria. The minimum inhibitory concentration (MIC) of investigated compounds was reported in $\mu\text{g/mL}$. Ampicillin and vancomycin were used as reference drugs in case of Gram-positive bacteria and gentamicin was used with Gram-negative bacteria, whereas isoniazid was used with *M. tuberculosis*. Results revealed that compounds **6**, **11**, **13**, **19**, **21**, **24**, **27**, **30** and **34** exhibited remarkable significant broad spectrum antibacterial activity against most of the examined Gram-positive and five strains of Gram-negative bacteria. Compounds **6**, **13** and **27** showed activity similar to vancomycin on MRSA bacteria, while compound **27** demonstrated remarkable effect against *M. tuberculosis* with respect to isoniazid.

RESUMEN. Este trabajo se llevó a cabo para evaluar la actividad antibacteriana de la nueva serie de 5-hidrazono-[1,2,4] triazoloquinazolines (**1-34**). La actividad antibacteriana de las moléculas diana fue probada contra una variedad de bacterias Gram-positivas tales como *Bacillus anthracis* (RCMB 0100162-8), *B. subtilis* (RCMB 0100169-3), *Enterococcus faecalis* (RCMB 0100154-2), *Staphylococcus aureus* (RCMB 0.100.183-9), *S. epidermidis* (RCMB 0.100.183-9), *Streptococcus pyogenes* (RCMB 0.100.172-5), *S. bovis* (RCMB 0.100.174-4), *Micrococcus luteus* (RCMB 0.100.132-2), y *Staphylococcus aureus* resistente a la metilina MRSA (RCMB 0.100.194-5), además de diferentes bacterias Gram-negativas como *Serratia marcescens* (RCMB 01002 72.6), *Salmonella enterica* serovar Typhi (RCMB 0.100.215-4), *Proteus mirabilis* (RCMB 0.100.254-2), *Klebsiella oxytoca* (RCMB 0100283-4), *Enterobacter cloacae* (RCMB 0.100.264-5), *Citrobacter freundii* (RCMB 0.100.263-6), *Pseudomonas aeruginosa* (RCMB 0.100.243-5), *Escherichia coli* (RCMB 010052-6) y *Mycobacterium tuberculosis* (RCMB 010094-8). Se empleó método de doble dilución en caldo para examinar el potencial antibacteriano. La concentración mínima inhibitoria (MIC) de los compuestos investigados se informó en g/mL . La ampicilina y vancomicina fueron utilizados como fármacos de referencia en el caso de las bacterias Gram-positivas, gentamicina se utilizó con bacterias Gram-negativas, mientras que isoniazida se utilizó con *M. tuberculosis*. Los resultados revelaron que los compuestos **6**, **11**, **13**, **19**, **21**, **24**, **27**, **30** y **34** exhiben notable actividad antibacteriana de amplio espectro contra la mayoría de las cepas examinadas Gram-positivas y cinco de bacterias Gram-negativas. Los compuestos **6**, **13** y **27** mostraron una actividad similar a la vancomicina en la bacteria MRSA, mientras que el compuesto **27** demostró efecto notable contra *M. tuberculosis* con respecto a la isoniazida.

KEY WORDS: ampicillin, antibacterial, gentamicin, 5-Hydrazono-triazoloquinazolines, vancomycin.

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