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Sulphamethazine Derivatives as Immunomodulating Agents: New Therapeutic Strategies for Inflammatory DiseasesHina Siddiqui¹, Haroon M Haniffa³, Almas Jabeen¹, Atta-ur-Rahman¹ and M Iqbal Choudhary^{1,2}¹University of Karachi, Pakistan²King Abdul Aziz University, Saudi Arabia³South Eastern University, Sri Lanka

Sulfamethazine (SMZ) (1) is an antibacterial sulfur drug which suppresses the dihydrofolic acid synthesis. It is used for the treatment of infections in livestock such as gastrointestinal and respiratory tract infections. During the current study, synthesis and characterization of sulfamethazine (SMZ) derivatives 3-39 were achieved. They were synthesized by the reaction of sulfamethazine with a range of acid chlorides. All the compounds were characterized by spectroscopic techniques, such as ¹H, ¹³C-NMR, EI-MS and HRFAB-MS. Among their compounds 3-10, 14, and 15 were identified as new analogues. These compounds were not previously reported for their immunomodulatory activities. In this study, immunomodulatory effect of compounds 3-39 on different parameters of innate immune response were examined, including effect on production of intracellular reactive (ROS) from human whole blood and isolated polymorphonuclear neutrophils (PMNs), nitric oxide (NO) and pro-inflammatory cytokine TNF- α . All the new compounds except 14 and 15 showed a promising anti-inflammatory activity. The compounds 3-39 were also evaluated for their cytotoxicity against the normal mouse fibroblast NIH-3T3 cell line. All the compounds were found to be non-cytotoxic.

Biography

Hina Siddiqui is an Assistant Professor at the HEJ Research Institute of Chemistry, International Center for Chemical and Biological Sciences, University of Karachi, Pakistan since 2012. She did her PhD under supervision of Prof. Dr. M Iqbal Choudhary in the year 2010. She is working in the area of organic synthesis, medicinal and bioorganic chemistry. She was the Visiting Research Scholar at the University of Kansas, USA (2007-2008) and later a Post-doctoral Fellow at the Institute for Organic Chemistry, University of Tübingen, Germany, in the year 2015. She has 17 research publications in international journals of good impact factor. Moreover, her doctoral thesis has been published as a book by a German press. Her research interests include discovery of antioxidant compounds from natural and synthetic sources and development of new synthetic methodologies for use in drug development and to probe the chemical space through small drug like molecules. She has received Research Productivity Award by Pakistan Council for Science and Technology twice. She is also the Member of various national chemical societies.

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