Synthesis and Study of 5−[(Phenylsulfonyl)Amino]−1,3,4−Thiadiazole−2−Sulfonamide as Potential Anti−Pertussis Drug Using Chromatography and Spectroscopy Techniques

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Editorial

Pertussis is a respiratory transmitted disease affecting approximately 23% of the worlds’ population. It is causes by Bordetella Pertussis [1−23]. The emergence of Multiple-Drug-Resistant (MDR) Pertussis has focused the attention of the scientific community thought the world on the urgent need for new anti−Pertussis drugs. In pursuit of this goal, our research efforts are directed toward the discovery of new chemical entities that are effective as anti−Pertussis drugs. During recent years, there have been intense investigations of different classes of 1,3,4-thiadiazole-2-sulfonamide compounds and derivatives such as 5−[(Phenylsulfonyl)amino]−1,3,4-thiadiazole−2-sulfonamide many of which are known to possess interesting pharmaceutical, biological, biochemical and biomedical properties suchlike anti−microbial, anti−Pertussis and anti−inflammatory activities. It should be noted that the purity of the synthesized compound was confirmed by High Performance Liquid Chromatography (HPLC) and also Thin−Layer Chromatography (TLC). Furthermore, the molecular and chemical structure of compound was characterized by 1HNMR, 13CNMR, Attenuated Total Reflectance Fourier Transform Infrared (ATR–FTIR), FT−Raman and HR Mass spectra.

On the other hand, Bordetella Pertussis remains a leading infections cause of death in the world today [23−43]. The emergence of Pertussis is increasing worldwide, partly due to poverty, inequity and rather to the HIV/AIDS pandemic, which greatly increase the risk of infection proceeding to overt disease. In particular, the appearance of Multi−Drug−Resistant (MDR) strains of Bordetella Pertussis, which exhibit in vitro resistance to at least three major anti−Pertussis drugs (usually Azithromycin, Erythromycin and Clarithromycin) and cause intractable Pertussis, has greatly contributed to the increased incidence of Pertussis. In addition, the development of drug−resistant strains of Bordetella Pertussis species has contributed to the inefficiency of the conventional anti−Pertussis therapy. Therefore, it seems that it is still necessary to research for novel anti−Pertussis drugs. In continuation of our research plan to discover, synthesis and study on a new anti−Pertussis drug, here in we would like to report the synthesis of the 5−[(Phenylsulfonyl)amino]−1,3,4−thiadiazole−2−sulfonamide as potential anti−Pertussis drug effecting Pertussis using chromatography and spectroscopy techniques.

References


