

ORIGINAL RESEARCH ARTICLES

SYNTHESIS AND BIOLOGICAL ACTIVITY OF 2-(4-SUBSTITUTED BENZYLIDENE)-7-METHYL-2H-THIAZOLO[3, 2-*a*] PYRIMIDINE-3,5-DIONES

Ankush Goyal^a, Baljeet Kaur^a, Amandeep Kaur^a, Vivek K. Gupta^b and Monika Gupta^{a*}

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ABSTRACT

The organosulphur thiazolo-pyrimidines are fused heterocyclic compounds that can be anticipated as 7-thio counterparts of the genuine purine bases such as guanine and adenine. They have attained a growing significance in the domain of drug chemistry because of their diverse pharmacological activities. In the current study, 2-substituted benzylidene-7-methyl-2H-thiazolo [3,2-*a*] pyrimidine-3,5-dione derivatives were synthesised. The synthetic compounds were tested against the human myelomonocytic leukaemia cell line (U-937) for their ability to inhibit cancer cell growth as well as against Gram negative *E. coli* (MTCC 40) and Gram positive *S. aureus* (MTCC 87) for their ability to inhibit bacterial growth. The amine and halogen containing compounds exhibited the strongest anticancer and antibacterial effects among all the derivatives in series (7a-j). Compounds 7h, 7e, 7a, 7b, 7c, 7i, and 7j displayed improved activity in both assays compared to standard andriyamycin and ciprofloxacin, whereas 7d, 7f, and 7g were shown to be moderately active. Through the use of IR, NMR and mass spectrum analyses, the molecular structures of the synthesized compounds were determined.