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# Synthesis, in vitro Anticancer and Antimicrobial Evaluation of Novel Substituted Dihydropyrimidines

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## Abstract

**Background**: Anticancer drug discovery and development is one of the most essential and rapidly changing avenues for medicinal chemist. The requirement for new chemotherapeutics in cancer is evident due to the limited capacity of drugs to cure or significantly prolong the survival of patients with disseminated tumours or certain leukemias. Despite large number of antibiotics and chemotherapy available for medicinal use, the treatment of infectious diseases still remains an important and challenging problem.

**Objective:** To synthesize new dihydropyrimidine derivatives and check their anticancer, antibacterial and antifungal activities.

Methods: A series of 1,4-dihydropyrimidine derivatives were prepared from Biginelli reactions by using ethyl acetoacetate. substituted benzaldehyde and thiourea in the presence of piperidine and ethanol. The compounds were reacted with dimethylsulphate, diethylsulphate, butyl bromide and benzyl chloride to give the new series of compounds. The structures of the newly synthesized compounds were established by IR, <sup>1</sup>H NMR, Mass spectra and elemental analysis. The synthesized compounds were evaluated for their *in-vitro* anticancer activity by using SRB assay method against the growth of four human's cancer cell lines, antibacterial activity against Staphylococcus aureus. Bacillus subtilis, Pseudomonas aeruginosa, Escherichia coli and for antifungal activity against Candida albicans and Aspergillus niger.



## Biography:

Kulbhushan Rana has expertise in synthesis of anti-cancerous drug. He has joined in Chemistry Department of S. D. College Barnala, Punjab in 2005. He is working as an Associate Professor from 2015 in this college. When he knew cancer is the second most common cause of death after heart attack and it is more curable when detected in early. He has decided cancer research is one more area in which chemistry can enhance life and remove misery. Then he has decided to research on anti-cancerous drug.



#### Speaker Publications:

1. "Analgesic and Antiinflammatory Activities of Clematis erecta Aerial Parts"; Indian Journal of Pharmaceutical Sciences. / 2017 / Vol 79 Issue 3

2. "Synthesis, in vitro Anticancer and Antimicrobial Evaluation of Novel Substituted Dihydropyrimidines"; Indian Journal of Pharmaceutical Sciences. / 2014/ Vol 76 Issue 4

3. "ChemInform Abstract: A Novel Oxidative Dimerization of Acetylenes to Conjugated Dicarbonyl Systems Using Iron(III) Perchlorate/ ChemInform. / 2010/ Vol 33 Issue 15.

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