Section A-Research paper

Synthesis, Biological Evaluation, and Insilico Studies of Novel 4(3H)-Quinazolinone Derivatives as Atypical Antipsychotics

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Abstract

Schizophrenia is a psychiatric illness characterized by a change in mental acceptance of thoughts. Atypical antipsychotics affect serotonin and dopamine levels by acting on the 5HT2A and D2 receptors, respectively. The aim of this study was to create a new sequence of 3[(2-aminopyridin-1(4H)-yl) diazenyl] quinazolin-4(3H)-one derivatives by designing and synthesizing them. Atypical antipsychotics' biological potential was determined by testing the synthesized derivatives for antagonistic action against dopamine D2 and serotonin 5HT2A. Molecules 5b, 5c, 5e, 5f, and 5j were discovered to be significantly active. According to SAR findings, the presence of electron withdrawing groups increased biological activity. Because of its therapeutic index of 15.46, the 5b molecule was chosen as the best molecule. The therapeutic index of 5e, 5f, and 5j compared favorably to the normal. The mechanistic function of the synthesized molecules was validated through docking studies of the 5b molecule and validation with standard Ketanserin. All of the synthesized compounds had strong antagonist activity against the dopamine D2 and serotonin 5HT2A receptors, suggesting atypical antipsychotic activity.

Keywords

Schizophrenia, Quinazolinone, Atypical antipsychotics, Docking, Ketanserin

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